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### A Review of the Hardware and Metal Trades.

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### Weimer's Suspended Pipe Hot-Blast to 25 per cent. Unquestionably the most im- of a comparative test ordered by Mr. W. W. of free trade, whereas other provinces, where helps to success except such as a simple but

We show in the accompanying illustrations the suspended pipe hot-blast stove lately intro-duced to the iron trade by the Weimer Machine Works, of Lebanon, Pa., and which promises to be a successful rival of the costly fire brick stoves of Cooper and Whitwell. The new stove excites much attention amongst metallurgists visiting our Centennial Exposition, where a model, one-fourth size, is displayed in the United States Government Building.

The principle of suspending pipe in the chambers of our hot-blast stoves, is, undoubtedly, correct, as the tendency to warp and "bend over," so destructive to the standing pipe stove, is effectually corrected, thus imparting greater durability to the pipes, and, consequently, longer life to the blast heating plant of a

Based on a correct principle, the general arrangement and details of Mr. Weimer's stove have been carefully worked out, and every object appears to have been attained that is essential to a thorough and complete success.

The air circulation through the pipes is the same as practiced in our best stoves, passing through one half of the number of pipes, and returning through the other half. The only objectionable feature of this system has been the tendency of the heat to draw to the hot side of the stove, and destroy the pipes on that side. Mr. Weimer, as will be seen by the illustration, meets this objection by throwing a central wall into the pipe chamber, which, in connection with the two combustion chambers, allows of control of the heat passing to each set of pipes. The amount of gas, and, consequently, the amount of heat admitted to either chamber, insure a uniform temperature to both sides of the stove. As the most rapid oxidation of the pipes takes place immediately above the floor of the pipe chamber, Mr. Weimer does not allow his pipe to come within three feet of the floor, but the space of chamber lost here is doubly compensated for by the pipe filling the usual vacant space under the roof. As no bed pipes or mains are used the metal used in their construction is saved, and every facility is afforded to make the com municating flues between the upper and lower chamber ample and properly distributed. The joints of the pipe are planed to a surface and secured by key bolts, and as they are outside of the stove, a new pipe can be substituted for a disabled one in less than one hour's time, without necessitating going into the stove, or even lowering the temperature of the lower chamber. This great facility of repair is one of the features of the new stove, together with the fact that no joint is exposed to the action of the heat, nor are there any cement joints to blow out. The roof of the stove is formed of pieces of brick cut to fit into and rest on the collars cast on the pipe to receive it. This makes a very cheap and durable roof, which can be easily removed in part for repairs of pipe

As will be noticed, the pipes are suspended from 15 inch wrought iron beams resting on plates on the side walls of the stove. The suspension bolts are attached to lugs cast on the pipe, and pass through a saddle placed over the 15 inch beam, being secured by keys. Provision tion under the boilers supplying power to the for dusting the pipes is made by the holes in the side walls of the stove, through which an air pipe is inserted.

unexceptionable pipe stove, and his large ex- tion, of Taunton, Mass., in space D. 9, col. 68, and prevents burning the iron, thus insuring the sive witnesses of the change which others efperience in all departments of blast furnace en- also in operation in boiler houses Nos. 3 and 4. point of durability. The troublesome feature feeted-mere idlers in the world of progress. gineering has enabled him to perfectly adapt his device to the wants of the iron trade. The specification of Mr. Weimer's patent, in which all the details of construction are fully described, will be found in The Iron Age of April

### Improved Grate Bars at the Centennial.

The subject of grate bars, although not a very interesting one to the general public, is nevertheless of very great importance to those using steam boiler and other furnaces. As there are several very important features which are absolutely essential in the construction of a really good grate bar, which appear to be entirely overlooked by many of the manufacturers, and but imperfectly understood by the unskilled engineers, who are but too frequently intrusted with the charge of steam engines and boilers, a few remarks on the subject may prove of interest, particularly to those who have to bear the expense incident to the use of badly constructed grates. At the convention of the English Institute of Mechanical Engineers, held in Liverpool, the president, Mr. Siemens, stated that fully 50 per cent. of the coal produced in England annually was wasted by imperfect combustion and the admission of cold air to the furnaces. Although results obained in England cannot be taken as a criterion for this country, yet, even allowing for the saving effected by recent improvements, the oss cannot be estimated at less than from 20

necessary to maintain as nearly as possible a lows: perfect combustion. In this the construction of the grate in regard to the amount of air space proportionate to the total area of fire surface is the point to be considered. Again, we have to take in account the labor required in keeping clean fires, as well as the perhaps more important considerations of loss of heat, and the unequal expansion and contraction of different parts of the boiler, caused by the un-avoidable admission of cold air by having the furnace doors open for any considerable length of time while cleaning or slicing fires. The grate bars in themselves constitute a by no means inconsiderable item of consumption in & Co., of New York. These bars are composed the unimproved forms, as they burn out so of two sides, connected by V shaped ties, rapidly as to require frequent renewal, which which are light but strong, and give a very necessitates keeping a constant supply on hand, large amount of air opening, while for the and the expenditure may be reckoned in pounds smaller kinds of fuel the openings are close of castings at so much per lh. per month. enough to prevent waste. In using such fuel

of coal. 10°225
Total evaporation during trials 202,800
Total consumption of coal during trials 23,600

This shows conclusively that a more perfect combustion was attained through the Ryder bar, and a consequent saving in time of evaporation of 17 per cent.

G. L. SMITH'S PATENT GRATE, manufactured and exhibited by W. W. Tupper of expenditures for grate bars in the steam log combustion, more, in fact, than can be admitted books. The saving in first cost and in ease of through the ordinary forms of grate, hence the in this country, but the world over. Yet this

portant consideration is the admission of the proper supply of air through the fire (both as iron is the staple trade, wish the abolition of the godly education afforded. The brothers were of commerce in detail will be a laborious but Lbs. necessary task of the Imperial government, 9-101 and an equalization of the different proposals seem the more possible, as they are based on the whole on the urgency of renewing the existing treaties. The German chambers of commerce entertain on this subject the same opininion as the representatives of French commerce and industry, who all, with the exception of Rouen, at the demand of their government expressed a desire for the renewal of the treaties of com-

### Baird and Napier.

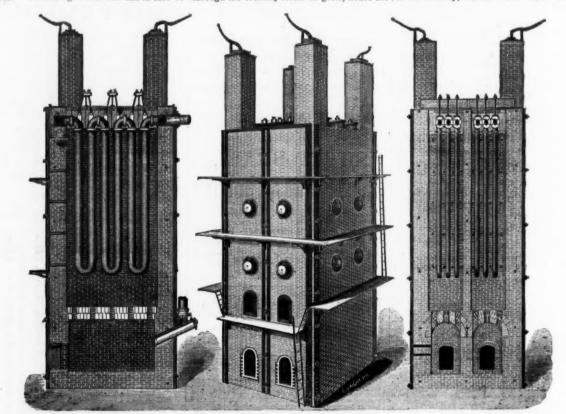
We now live in the Iron Age. Iron is the material in which almost all our works are executed. It transports us from place to place by sea and land; it is the material of our pon-This is particularly the case in the furnaces of as pea coal, screenings, slack, &c., a large sup-derous structures, of our most delicate instrumarine boilers, as shown by the frequent entries | ply of air is absolutely necessary to support | ments, and our most beautiful ornaments; it is

united among themselves, and were all en-ligence and industry. The tilling of the soil did not afford scope enough for their ambition. They began with coal mining, and prospered as only the hard worker is able to prosper. Then they added iron mining to their trade, but it was a long and arduous conflict against prejudice and difficulty. If work was to be done it was done by their own hands; if defects were to be removed, they were surmounted by patient experiment, which recognized no such word as failure in the vocabulary. And in due eason they had their reward. Their manufacture of pig fron was of the highest quality; their brand became the hall mark of excellence, and the demand for their produce grew with the advancing necessities of the time. But the proprietors of the Gartsherrie Works did not rest content with prosperity when it dawned apon them. Every new improvement was rapidly utilized, and they have not experienced the fate of many early successes-that of being left behind in the race by young and more enterprising competitors. Their position is still as pre eminent as at any previous stage, and se who recall the changes which 50 years have witnessed in the iron trade, know that this result can only have been secured by constant adaptation to changing circumstances. James Baird was the master spirit of this great firm. He worked at the early pits underground; with his own hand he built the first smelting furnaces in Gartsberrie. His fertile brain devised many ingerious means of increasing production, improving quality and economizing labor. He won success and real zed wealth; and, rarer incident, he used his postion with a sense of conscious responsibility. Wherever he gathered men together as his servants he provided them with the means of spiritual grace; he gave them the same sound education whose blessings he had experienced, and in later years he bestowed on the church, of which he was always a dutiful son,

the most munificent gifts the world has chron-

The story of Robert Napier is more diversi-

fied, but it contains the same leading features of industry, ingenuity and restless anxiety to advance. The Monkland farmer's sons took to the digging of coal and ironstone out of the bowels of the earth, and converting the ironstone into pig. The Dumbarton blacksmith's son employed himself in the manipulation of the smelted iron into implements of commercial utility. He commenced in a humble way in Glasgow as "blacksmith and millwright," but he was not satisfied with this small sphere. He then employed himself in the casting of iron water mains, which were a grand advance on the hollowed trees with which our forefathers were contented. Then he advanced from the repairing of engines to their construction, and was one of the earliest to recognize the uses of the steam engine for marine propulsion. His name will be forever associated with the designing and construction of marine engines; at first on a humble scale, but as experiment followed experiment, with the most stupendous engines that have ever been contrived. Liverpool has a close identity with his labors, and has profited by them more perhaps than any other community. It was Napier's engines that propelled the first steamers that traded between Liverpool and Glasgow; and he was one of the originators of the fleet which first established regular steam communication between Liverpool and New York, and which has now developed into the unrivalled Cunard line. Surely it was no ordinary man who in the early days of steam navigation engined the Vulcan and the other tiny traders between the Clyde and the Mersey; who in the next stage engined the Britannia, the Arcadia and the other pioneers of transatlantic voyages; and who in the still later days of progress built hull and engines of such vessels as the Persia, the Scotia and the China. But his industry was not restricted to the mercantile navy; he also constructed troop-ships, stately men-ofwar, floating batteries, and armor plated vessels of the most ponderous dimensions. There is a wide range between the small steamers which the Messrs. Burns first employed between Liverpool and Glasgow, and the floating palaces which they now employ on the Atlantic ferry; there is scarcely less width of range between the now antiquated Erebus and the luvincible Black Prince, Hotspur, etc., which in succession have been built at the Govan building yard. Yet these unparalleled advances have been accomplished in one man's lifetime, almost by one man's unaided ingenuity and skill. The narrative is a suggestive one. It tells of the rapid strides which modern progress has made; it tells also of the heroes of the conmade; it tells also of the heroes of the con-flict, and of their splendid triumph. James Barrd and Robert Napier played conspicuous parts in the heralding and the advent of the Iron Age, and in their death the world mourns benefactors whose labors have enriched all men, and augmented the sum of human happiness. —Liverpool Courier.



WEIMER'S SUSPENDED PIPE HOT-BLAST STOVE.

using in their construction the smallest weight of metal consistent with the required strength. Quite a number of improved grates are exhipited, both in Machinery Hall and in operamachinery. Among those worthy of notice may be mentioned

" RYDER'S RECIPROCAL GRATE " by motion of the bars or rings of which it is composed. There are two distinct sets of bars, one of which is stationary, and the other having a reciprocating motion, which is both rectilinear and vertical. They are supported by bearing bars, at the ends only, the front one of which is supplied with a simple and effective mechanism, operated by a hand lever for working the movable bars. The latter work on friction rollers, which render the operation easy, even under a very heavy fire. Both the stationary and working bars are cast in pairs, the spaces and thickness of metal being calculated to give admission to the proper supply of air, and is necessarily varied to suit the different kinds of fuel. Each bar is toothed, so that the grate presents a serrated surface, which, by giving a hold on the bottom of the fire, more effectually removes ashes and breaks clinkers, so that they will readily pass through the openings. The operation of the grate is so effective that the necessity for using a slice bar is entirely obviated, and the furnace doors need never be fires. By having the grate slightly higher in the center, the motion keeps the fires perfectly level and of uniform thickness, and leaves no ners, which, by the admission of air where no combustion is taking place, is a very serious result of unskillful firing, often occurring where stationary grates are used. The result

handling makes evident the desirability of | necessity of considering all slack as waste, and | marvelous development is the growth of a that class in which cleaning the fires is effected obviated by the flexibility of the angular ties.

THE ADAMS SHAKING GRATE, manufactured by Samuel S. Bent, Globe Iron Foundry, New York, is exhibited in operation longitudinal bars to each section, connected by atraight ties and having lateral projections ou centers of the spaces of the alternate bars. The shaking is effected by imparting motion an independent oscillating or rocking motion to the grate bars, which is very effective in removing ashes and clinkers.

Beside the grates described there are several exhibited in Machinery Hall, of which, as there appears to be no attendant in charge of them, it is impossible to obtain any particulars. Among them may be mentioned the "Balance Renovating Grate," Exeter Machine Works. Boston, and L. B. Tupper's grate, New York.

The Free Trade Question in Germany. -It appears that owing to the approaching exopened except for the purpose of feeding the piration of the commercial treaties of Germany with other states, a committee of German chambers of commerce has been soliciting opinions upon the subject of their renewal from an almost general expression in favor of free trade. With especial reference to the iron department, the Chamber of Commerce of Rem-

as on steam vessels particularly the percentage comparatively short space of time. It is only of slack is often very large, the value of a grate now that the great masters who originated and which will utilize it is obvious. The fires can perfected the transition are passing away. Two be cleaned very quickly by simply passing a T of the most remarkable of them have just been shaped slice bar over the top of the grate, the angular form of the ties breaking the clinkers of James Baird and Robert Napier, the mind and preventing ashes from sliding as on straight fails to realize the vastness of the strides which parallel bars. The large amount of air passing those manufacturers have made within the span Mr. Weimer claims that he has produced an exhibited by the Ryder Reciprocal Grate Association through all parts of the grate keeps it cool and of their lives. But they were not silent or pas-As indicated by the name, the grate belongs to of jamming from side expansion of the bars is They played leading parts in the great drama of industrial progress, and saw their labors crowned with a success which, in their wildest dreams, their imagination could not have fore cast. They followed the sure path to fame and in boiler house No. 4. It is composed of two prosperity; each new advance was only the stepping stone to something greater, and their restless spirit acknowledged no such attribute each side, placed so as to come opposite the as finality. Both were identified with the manipulation of iron; each labored, however, in a distinct sphere; and each not only witlengthwise to the end bearing bars, which gives nessed but produced a revolution in his special department. The Bairds were associated with production or the crude metal, and Napier with the fashioning of it into wonderful engines of human economy. Each in his department carried his work to the fullness of perfection-not by one grand achievement, but by a long series of patient improvements, worked out with laborious care and consummate ability. These men were contemporaries, almost fellow-townsmen, and they shed luster and wealth on their own district and the world. The Garthsherrie Iron Works are of world-

wide fame, but those gigantic works are the creation of one generation of men. They had a humble beginning, and were born amidst difficulties and obstacles that would have crushed out less persevering men than the Bairds. Ingaps nor holes around the edges or in the cor- other commercial bodies, the result of which is deed, that family had no advantages in their favor except their natural gifts of courage, perseverance and indomitable industry. were not even trained to the business of iron scheid is desirous for an equivocal introduction making. They were a farmer's sons, with no Metals.

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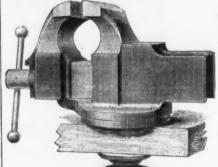
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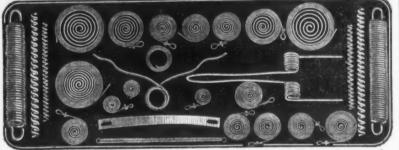
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Market Steel Wire, Crinoline Wire, tempered and covered, also Patent Tempered

Steel Furniture Springs, constantly on has

### **Faultless** Can.



\*\*: \$9:50, 1 qt.; \$10:50, 1\(\frac{1}{2}\) qts.; \$12:50, 2 qts. per gross.

\*\*Cans made up ready for use:
\$9:75, 1 qt.; \$11:75, 1\(\frac{1}{2}\) qts.; \$15:75, 2 qts. per gross.

\*\*We would caution dealers against an imitation of our can having a swell "or "bead "near the top to prevent the cans sticking together when steed, as this feature is covered by our Fatents.

The Trade only supplied.

\*\*Use good Scaling Wax for this, and all other cans, to secure good suits.

F. STURGES & CO., Sole Manufacturers, 72, 74 & 76 Lake Street, CHICAGO.

# Manila Pails SCHIERLOH MFG. COMPA





OFFICE, 24 Exchange Place, Jersey City, N. J. This compound is put up and warranted genuine only in 1, 5, 10, 50 and 100 lb.

packages, and can be obtained from the manufacturers direct, or from the following General Agents at manufacturers' prices, in large or small quantities WHITMORE, WOLFF, LANE & CO., Pittsburgh, Pa.

PARKHURST & WILKINSON, Chicago, III. GEORGE D. HALL, St. Louis, Mo. H. R. IVES & CO., Montreal, Prov. of Quebec.

It is also for sale in 1, 5 and 10 lb. packages by Hardware Dealers generally throughout the country.

# O. LINDEMANN & CO., BIRD CABES. Received the FIRST MEDAL at the World's Exposition of Vienna, 1873 Once and salesroom, No. 254 Pearl Street, No. 254, 254 & 256 Pearl Street, Pactory, OPPICE, 81 Canal Street, Providence, R. I. WORKS at Valley Falls, R. I. Manufacturers of PERKINS and RHODE ISLAND PATTERNS of PERKINS and RHODE ISLAND PATTERNS of PERKINS and RHODE ISLAND PATTERNS of HORSE AND MULE SHOES. However with the draft tube is used. To overcome the great pressure derived, where it is practicable, from the head, and where this is insufficient, from a force pump receiving motion from the wheel. This, by interposing a thin film of water between the metallic surfaces, prevents actual contact and consequent friction and ware, and although a well known device, is novel in its application to turbines, and is without doubt the best anti-friction bearing known. As the central portion of the wheel, containing the hub and arms, is above the level of the tail water, and as the discharge from the backets takes place through ample eduction openings, as soon as the power of the water is "Xpended, all friction is reduced to a minimum. The results of the above manufaced tests were as follows: Diameter of turbine, 9 feet; fall of water, 10 feet; speed in both tests, 40 revolutions in the turbines. HORSE AND MULE SHOES. JAPANNED AND PATENT BRIGHT METAL

### Turbines at the Centennial.

(Concluded.) GEYELIN'S DUPLEX "JONVAL" TURBINE.

To the Jonval wheel may be traced the origin of that class, having as its distinguishing characteristic a vertical discharge, and all turbines which embody this feature of construction are designated "Jonval" wheels, which term has come to be regarded as a synonym of their ac-Among the many modifications may be mentioned the Bodine Jonval, having as its peculiar feature the register gate, a circular plate placed over the top of the stationary chutes, and having radial openings corresponding with the latter. The before mentioned Leffel double wheel embodies in its lower tier of buckets the Jonval principle. A very serious defect in this, as in other classes of wheels, has been the discrepancy in percentage of power between full and partial gates-the loss by the latter being occasioned by the fact that, while the quantity of water was reduced, the surface of the wheel to be acted upon remained unchanged, and the water by being allowed to spread lost seriously in motive power. Recognizing the importance of overcoming this objectionable feature, Mr. Emile Geyelin, of Philadelphia, one of the most prominent and successful hydraulic engineers in this country, has devoted much attention to the subject, and as the result has succeded in con structing a wheel which has been found premmently capable of attaining the desired end as has been proven by a series of dynamometri eal tests at Williamsville, Connecticut, Nov. 30, 1875. Selecting the Jonval as the principle which, under tavorable circumstances of con struction, was, in his opinion, capable of riving the greatest percentage of power, Mr. Geyelin went at once to the root of the evil. by constructing a wheel whose surface was capable of being reduced in proportion to the volume of water, thus preventing any scattering of the latter, and insuring the same ratio of power with partial, as with full, gate. The most advantageous variations from full to minimum power are placed at two-thirds and one third, although these proportions are not arbitrary, but may be modified as desired. A description of the wheel, although necessarily brief, will convey a general idea of the peculiarities of construction by which so important an end is gained. The wheel proper, in the larger sizes, is composed of two parts-the center, containing the hub and arms, to which is se curely bolted the annular ring, containing two sets of buckets composed of boiler plate, solidly cast into the cylinders, forming the inner and outer faces of the wheel, and a dividing ring which separates and renders them independent of each other. The buckets of the outer set are placed opposite the center of the spaces of the inner, thus equalizing the strain under full gate, beside strengthening the wheel. The guide casing is an annular ring open at top and bottom, having a vertical section of an inverted conical form, and being divided by a perpendicular partition (corresponding in position with the intermediate ring in the wheel) into an inner and an outer space. In these two spaces are placed the guides, which, like the buckets of the wheel, are constructed of boiler plate, and break joints as to their relative positions. Both the guides and buckets contain the latest improvements in regard to curvature, number, &c., which have been found to give the best results in establishing and receiving the curents of water. The central space of the guide asing, with the exception of an opening for the passage of the shaft, is entirely closed by a slightly arched web, thus confining the passage of the water to the chutes. Bolted to the intermediate partition of the guide casing is a ring, or hood, having curved projections on each side reaching a line perpendicular to the walls of the kinds of fuel. inner and outer chutes, and at a hight above the latter necessary to give an area of cylindrical the chutes. Surrounding the outer, and inclosed by the inner, projection are two cylin ders, having each an independent vertical motion derived from suitable mechanism. These form the gates, which, by being raised or low ered, open or close the cylindrical openings to the chutes, thus supplying water to either or both, as may be required. When it is necessary one-third, the inner; and in all cases, whichever peded admission to the water, and avoiding the friction and broken currents invariably caused by a partially closed gate. The combined area glycerine and its various compounds, in charges of the inner set of buckets is somewhat more than one half that of the outer, the excess being for the purpose of making up for the decreased leverage incident to smaller diameter. As the periphery of the wheel is a plain cylinder, and cannot cause friction, even when running in the tail water, no casing is re quired below that of the chutes, except where the draft tube is used. To over-

(total opening in wheel), 136:20 horse power; with 740 square inches (inner gate closed), 89 horse-power. This demonstrates conclusively that with variable quantities of water this wheel will develop power proportionate with the quantity of water used. The large guide wheel exhibited (10 feet 3 faches) is by R. D. Wood & Co., of Philadelphia, who also show a Jonval wheel of the original design. Although these wheels are more particularly intended for the larger sizes, where great power is required, the firm have in course of construction one of suitable size for the coming test trials, to take place under the auspices of the judges of awards beneath the cataract tank in the Hydraulic Annex, where all wheels entered for compo tition will undergo the ordeal. The best skill and appliances known to science will be employed to determine, beyond cavil, the relative merits of the competing wheels, and to all caring for the subject of mechanics, the occasion will be one of great interest. In ludierous contrast with the immense wheel above mentioned s one of the Jonval class, having a diameter of I icch, and capable of developing, with a threequarter inch stream, 200 feet fall, I horse-power, This wheel is not a toy, but intended for practical use where small power is required. the invention of Mr. James Hawerth, of Phila-

### Steam Fire Engines.

It has been noticed by all who have seen team fire engines in operation that the pressure of steam varies considerably in a short space of time. Rising sometimes from, say, 15 or 20 pounds below the blowing off of the safety valve to as much above, and then, on opening the fire door, falling to the original point. Now this, in itself, is injurious to the boiler, and could be prevented by proper attention, allowing the fireman to have a steam gauge in a conspicuous place in addition to the engineer's gauge. The engineer would then be a check upon him. There should also be a damper in the stack to regulate the draft, as in stationary and marine boilers. This damper should be placed below the exhaust for apparent reasons.

The feed is placed near the bottom ring of the boiler, just high enough to give a clear flow in case of mud collecting between the shells. The space between the fire-box and outer sheet is generally about 11/4 inches only. Cold water is fed into this space on one side, while on the other the temperature is sufficient to melt iron. The disadvantages of such an arrangement are apparent, as it causes crystallization of the poiler plates, and hence, liability to blow out at the injured points, beside the lessening of water in the boiler, which, of course, brings down the steam. The proper remedy for this would be a heater, very few, if any, of which are used on steam fire engines. This heats the feed water to a temperature a little below that of exhaust steam.

The fuel box in front of the fire door might e discarded to make access to the boiler more easy, and in its place have a tender drawn by one horse. This arrangement would be better than the present, not only as taking off of the weight and size of the engine, but in allowing more capacity for fuel. When a fire is of long duration, it often happens that the fuel is exhausted, the engines having to run constantly, and it becomes necessary to stop till more coal or wood can be obtained.

Hard coal might be used in this manner: Fire knots (many engines use knots exclusively) to get up steam, and then use the anthracite coal. It would take less space and weight than soft coal or wood, beside the least cost for making the same amount of steam as other

Engineers and firemen should be compelled to be licensed, as on railroads, steamboats, and opening equal to the annular area of the top of in the marine service, as their knowledge and skill would then enable them to guard against everything lejurious to boilers and engines and make a saving in repairs and fuel, as well as diminish danger from explosion.

The Hell Gate Blast .- The great blast which was to have taken place on the 4th of July at Hell Gate, has been postponed until to use the full power of the wheel both gates are open; for two-thirds, the outer; and for the contracts for explosive materials have not yet been filled. The battery for exploding the gate is used is wide open, thereby giving unlm- charges will be placed near the edge of the pit; the operating room will be about 350 feet

The explosive materials used will be nitronot exceeding ten pounds each, and placed at points where they will be most effective. Gen. Newton says that the water not only will act as a tamping or covering, preventing by its weight an intense report and shock, but that the enormous amount of heat generated from the liberated gases will spend its force in vaporizing the water, thus lesseoing the chances of marked agitation on the surface. It is not expected

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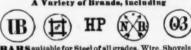
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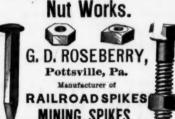
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Mining and Metallurgy at the International Exhibition.

Following the brief sketches of the mineral wealth of the far-off British colonies, we come to the most important and to us the most interesting possessions of the mother country, those forming a part of our own Continent.

To say that the British possessions in North America are well represented feebly expresses the admirably arranged collection of economic minerals and geological specimens which illustrate the work of the Canadian Geological Survey. The natural resources of the various provinces are displayed in a collective exhibit. which demonstrates that although the colonies do not share in the satisfaction of 100 years of independence, and that in an area equal to that of the United States they have but one-tenth of the number of inhabitants; yet in the distribution of metallic ores, fuels and earthy materials from which industrial products can be extracted they have not been overlooked. The exhibit occupies the rear of the Canadian court, along the north wall of the Main Exhibition Building, and is systematically arranged under the following heads : 1. Metals and their ores.

2. Materials used in the production of light

and heat. 3. Minerals applied to certain chemical manufactures and their products.

4. Mineral manures. 5. Mineral pigments and detergents.

6. Salt, brines and mineral waters.

7. Materials applicable to common and dec

orative construction. 8. Refractory materials, pottery clays and

Materials for grinding and polishing.
 Minerals applicable to the fine arts and to

11. Miscellaneous minerals. It is not our purpose to refer to all of these classes, but only to give a brief resume of such of them as will be of interest to our readers. Those who are desirous of examining more fully into the natural resources of British North America, will soon be able to have valuable assistance from a very complete catalogue now in preparation by Prof. Selwyn, the able di rector of the Geological Survey of Canada. This catalogue will describe the location and character of the deposits of the various miner als, give analysis of their composition, statements as to development of workings, and indicate their geological position. Some of the specimens already have this information attached to them, cut from proof sheets of such parts of the catalogue as have gone to press, and they are very thorough and complete explayed some instructive charts and maps and a very good collection of rocks. We were par ticularly impressed with a geological map of Nova Scotia, and also a map, the finest and largest we have ever seen, illustrating the geology of North America above the now happily forgotten boundary, formerly known as Mason and Dixon's line. (The original notes of the

survey of this line are on exhibition also.) The coals of British Columbia are displayed at the western end of the collective exhibit, while at the eastern extremity blocks and columns of coal representing the various seams in Nova Scotia, Cape Breton and New Bruns wick, from 2 to 13 feet in thickness, stand as sentinels guarding the display. Among the coals from British Columbia are some very good bituminous specimens which coke well, but the most interesting is a lump of superior anthracite which, as analysis shows, contains 86 per cent. of fixed carbon, 2 per cent. of water, 7 per cent. of ash, 1 per cent. of sulphur and 4 per cent. of volatile combustible matter. This anthracite is found in the Queen Charlotte Islands, on the western coast of British Columbia, and large expenditures to develop it have met with but meager success, the vein thinning out or changing to an inferior coal. In one instance this coal was found in a vein 6

New Brunswick displays a block of ordinary bituminous coal, and specimens of Albertite and its accompanying shales. This deposit is peculiar to Albert county, N. B., and has been used to a considerable extent in the United States for the manufacture of illuminating gases, one ton of Albertite yielding 14,500 cubic feet of illuminating gas or 100 gallons of crude oil; 9000 cubic feet of gas from a ton indicates a superior gas coal.

The Albertite has really no definite place in mineralogy, being a sort of cross between a true coal, an asphalt and jet, various scientists having ascribed it to each of these. In appearance it strongly resembles asphalt. The accompanying shales are also used for generating gas and producing oil, 60 gallons of oil or 7500 cubic feet of gas having been extracted from one ton of the shale; but some of the shale is much inferior in product.

Nova Scotia coals are illustrated by samples of the Pictou and Cumberland veins, containing the Island of Cape Breton has quite a number of ections of veins, some of them over 8 feet thick, on exhibition.

From the northwest territory there is contributed a block of lignite a foot square and 4 feet high. It is, more properly, a coal containing considerable water. Its analysis is:

Water
Volatile combustible matter.
Fixed carbon.
Ash

Crude petroleum and its various products represent the Enniskillen oil region in Ontario,

bec, prepared by Hodge's and by Griffin's proit sells for \$3:50 per ton at the works, and that distributed throughout British Columbia, but the Grand Trunk Railway consumes in their lo- the Cariboo, Omineea and Cassiar are the promcomotives about 20,000 tons per year.

very complete, over 50 localities being represented by a great variety of specimens of magnetites, hematites, Ilmenites, limonites (includ-ing bog ores), specular and spathic iron and clay iron stones. There is also a fine meteorite, weighing over 350 pounds, from the Province of Ontario, which has, combined with the native ron, 61/2 per cent. of nickel.

The peculiar Moisic iron sand found in the Province of Quebec, and some of the iron made from it, are on exhibition. The product from this iron sand was a question of considerable Quebec attest to the presence of the precious diplomatic correspondence, bearing upon the metal in considerable quantity. No thorough duty to which it was subject at our ports of entry. As the iron sand is reduced in a bloomary, the claim was made that the billets should enter as pig iron and not as refined iron.

Very superior magnetites are shown from ome of the islands on the Pacific cosst. One sample of 68 per cent. ore contains but 3-1000ths of 1 per cent. of phosphorus. Another specimen yields 71% per cent. Two magnetites from Ontario yield respectively 60 and 53 per cent. of metallic iron, and a third analysis 65 per cent. but is inconveniently located for ship

Hematites of unusual richness from Thunder Bay, Lake Superior and from the prov-Inces of Ontario, Quebec, New Brunswick and Nova Scotia-one from the latter yielding over 68 per cent, of metallic iron. and containing very little sulphur and no phosphorus-are exhibited with pig iron and bars. A titaniferous ore from Bay St. Paul, Quebec, is shown, which, though occurring in large quantity and yielding about 40 per cent. of metallic iron, has not been worked econom ically on account of the amount of fuel required to smelt it. The limonites embrace compact, ochrey and fibrous limonites from Nova Scotia, and bog iron ores from Ontario, Quebec and New Brunswick. Some of them are exhibited in connection with the pig and wrought iron, slags, etc., resulting from the melting and refining of the ores. This is especially the case with the Steel Company of Canada, whose display embraces limonite ore, charcoal pig iron, chilled car wheels and rolls, cast iron chains, light castings and steel of various qualities, all of which are products from the ores displayed. An interesting feature is the peculiar flux Ankerite," a magnesian calcite, employed in

reducing the ore at the company's furnaces.

Native copper from the Frazer River in British Columbia, and from the Michipicoten Island in Lake Superior, and sulphides of copper from the various colonies, together with ingots, demonstrate the presence of this metal in Canada. Among the specimens is a portion of a large boulder of copper glance, which analyzed 62 per cent. of metallic copper. A large proportion of the copper ores mined in Canada are carried to England for reduction, although works have been constructed in the colonies for smelting and for reduction by both the Hunt and Douglas and the Henderson

Zinc is found in the Lake Superior region in the form of sulphide or blende, but not generally in promising quantity. It is usually assoclated with iron and copper pyrites and galena. In fact, galena and blende are found together throughout this Lake Superior region-the principal lead deposit of the colonies. Some of the specimens are obtained from the shores of, and islands in, Silver Lake, located six miles north of Thunder Bay and 500 feet above Lake Superior. One Lake Superior specimen analyses 471% per cent. of lead, and 10 per cent. of copper, with about 18 pennyweights of gold, and over two ounces of silver per ton. This ore is in a solid vein 4 feet wide at the surface.

Galena in calcite, pig lead from Ontario, and galena with pyrites from the Cariboo Mountains in British Columbia are also exhibited. Fine grains of native platinum, which occur with alluvial gold in some of the British Columbian streams, are displayed, and are of marked in-

Specimens of sulphide of bismuth and metallic bismuth made from the sulphide, which occur near Tudor, Ontario, and antimony ores from Quebec and Ontario are exhibited. The ores from Quebec include both stibnite and kermesite; those from Quebec consist of gray sulphide (stibnite) raw and roasted, displayed by the Lake George Mining Company in connection with antimony, regulus and Babbit metal. Nuggets of native silver, silver ores and sil-

ver ingots from British Columbia, and native silver, silver glance, and argentiferous galena, from various localities in the Lake Superior region, form an attractive portion of the display. Some of the ores and native silvers are remarkably beautiful specimens; particularly is this the case with those exhumed from Silver Islet, a mere rock in Lake Superior, the exposed surface of which was too small and the elevation from 55 to 66 per cent. of fixed carbons, and above the water too slight to carry on the mining operations properly until crib work was constructed. At present the workings are 550 feet below the lake, and branch out from the shaft. One specimen containing \$700 worth of ore is polished to show the dissemination of the metal throughout the mass. The product from this Islet is estimated to have reached at the present time two and a half million dollars. A series of specimens "brown ore" occurring with galena and blende in bitter spar, on the north shore of Lake Superior, are quite attrac-

Specimens of peat from the Province of Que- varied from one million to nearly four millions, and an octahedron representing the average , are exhibited with the statements that surmounts the pyramid. This metal seems well inent gold fields: the latter is the most north The display of iron ores and their products is ern, and gives promise of being the most pro-

> There are also in the collection gold bearing quartz and alluvial gold, from the northwest erritory and from the Lake Superior region : and gold bearing arsenical pyrites, gold and silver bars, paris greeu, white arsenic, and brown pigment residuum, resulting from the separation of this ore which occurs in the Marmora district of Ontario.

> Models and samples of superior nuggets from he basin of the Chaudiere in the Province of working of this district has been made, although it is claimed that gold can be found on most of the streams, and that in one case a farmer took out with a pan in one day \$1200. The old French Canadians, unwilling to lose po sion of their lands, have discouraged all mining

> The auriferous quartz which occurs along the Atlantic coast of Nova Scotia is illustrated by pecimens. Since 1852 this Province has produced about \$4,500,000 of gold. In a modest ease there was exhibited a tray containing two gold bars, a number of nuggets and gold dust, aggregating in value over \$13,000. Owing we suppose to the watchfulness it required this xhibit has been removed, we hope only temporarily, for it is a relief after inspecting gilded models to feast one's eyes on the pure metal. A knowledge of the presence of such a display

would bring many to view so unusual a sight.

A feature in the collective exhibit is the dislay of the Dominion of Canada Plumbago Company. In one case is a mass of remarkably pure plumbago, weighing 4870 pounds, and in another case are specimens of the mineral and its product-crucibles, lubricants, pencils, stove polish, etc. The graphite from the mines of this company at Buckingbam, Quebec, is claimed to contain 96 per cent. of carbon. Specimens from other localities in the provines of Ontario and Quebec are also shown. An interesting display is made of iron py rites, with salt cake, nitrate of soda, nitric. sulphuric and hydrochloric acids, and other products.

The collection of building stones is quite large and varied, consisting of sandstones, marbles, limestones, and some very beautiful dolomites; monuments and blocks cut from the various stones demonstrate the quality. One ontributed by the Dorcester Freestone Company, of New Brunswick, is a representation of our cracked liberty bell, with its legend, "Proclaim liberty," etc. Superior gypsums, sand stones and sand for furnace linings and glass making, flagstones, grindstones and lithographic stones are on exhibition. Specimens of work done on the lithographic stones attestto their commercial value. The display of slates is exceptionally fine. Specimens prepared for various purposes demonstrate its usefulness, while its strength is illustrated by a slab seven inches wide and three-eighths of an inch thick, resting upon supports 30 inches apart, and sustaining a block of stone in the center weighing 172 pounds

The examination of the collective exhibit of the North American possessions of Great Britain has been to us a source of much pleasure and profit, for by it we learned much about our reighbors and the resources of the country.

To those of our readers who would study the physical features of Northwestern America we would recommend a careful examination of Mr. Anderson's large map in the collective mineral exhibit, in connection with his descriptive pamphlet, freely given to any who are in-

Refrigerators in Detroit.-The Detroit Free Press has the following account of an interesting incident in that city:

A Nankin farmer visited a Detroit hardware store yesterday, and when he mentioned the fact that he would like a refrigerator, the proprietor welcomed him with a sunny smile and the clerks cheerfully barked their shins against the stove as they flew around "Will you look at these ice chests?" asked

the proprietor, as they came to a long row.

"What do you want to keep ice in a chest for 9" growled the farmer. "What I want is something to keep provisions cool and nice in

"Well, here you have it. Here is the best refrigerator made. The farmer opened the door, looked the box over and around, and seemed much pleased with it. Presently he inquired:

"What is the principle of the thing-how does she cool off the provisions?" "You put your ice right in here, shut the

box and away she goes," was the reply. " Ice !" gasped the farmer. "Why of course. You can't run a refriger. ator without ice, can you ?"

The farmer turned without a word, walked down stairs and out to his wagon, and was get ting in, when the hardware man hurried up and

" What's the matter ?"

"Do you think I'm a four-cornered fool?" howled the agriculturist. "Do you think I'm going to buy that high-priced provision asylum and then keep ice too ?"

Electric Lighting .- The Great Northern Railway of France has been making a series of experiments on the use of the electric light. Under the direction of M. Fresca, the luggage which produces about 100,000 barrels per annum. Specimens of crude petroleum and sandstone impregnated with petroleum, from the Athabaska River, show one of the products of the Northwest territory.

A score of localities in British Columbia are represented by gold specimens, and a gilded pyramid illustrates the production of this province, which has amounted in value since 1858 to more than \$38,000,000. The annual output has and 50 times cheaper than gas. Eron.

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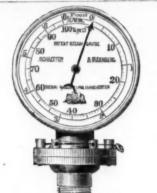
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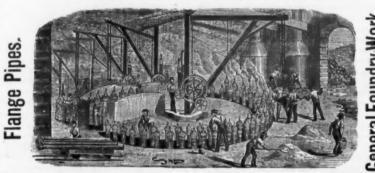
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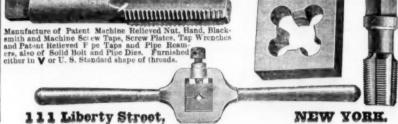


THE HARDWARE TRADE are hereby cautioned against an imitation of our American Ice Chieel, made of Malleable Iron Castings, which has made its appearance in the market. It is nickel plated and calculated to deceive. Our chieels are made of the best cast steel and warranted.

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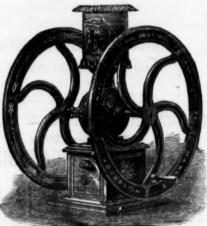
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\*\*CAUTION.\*\*—The public are notified that in my suit against Imhæuser & Co., of New York, a decree as made in my favor, June 10, 1874.

\*\*Proceedings have been commenced against said Imhæuser & Co., for selling clocks contrary to the ler of the Court, and especially the clock with a series of springs in the cover, and marked "Patented to 30th, 1874." All persons discovered using these infringing clocks will be dealt with according to law.

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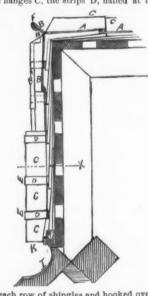
### New Patents

We take the following abstract of new patents, recently issued, from the official rec-

METALLIC ROOF.

To F. C. Conklin, Monroe, N. Y.—June 6.—

1. The combination, with a shingle roof, of strips A, extending from peak to eaves, having top flanges B, turned at F, and provided with side flanges C, the strips D, nailed at the butt

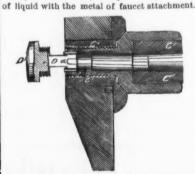


of each row of shingles and hooked over flange at E, and the wood strip G, arranged along the margin and edge of strips A, all constructed and arranged to form a secure covering for an old shingle roof.

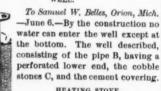
2. The wood strip J, arranged along the eaves of roof, and connecting the trough I with strips A by the seam K.

FAUCET ATTACHMENT. To Harry E. Sadler, Brooklyn, N. Y.—June 6.

—1. The wooden plug D', attached to the end of adjustable tube D, and preventing contact



2. A detachable faucet key, having a threaded tubular part for screwing into bushing, and an outer socket part with wood lining, for retaining the faucet.



HEATING STOVE. To John J. Gill, Mexico, Mo .-June 6 .- 1. The combination, in a stove, of the fire chamber B, vent G, flues E and I', per e, and flue J. G, flues E and I', opening i, dam-

2. The combination, in a stove, of the chamber B, vent G, opening i, and flues I' and J.

3. The combination, in a stove, of the chamber B, flue E, flue I, and vent G.

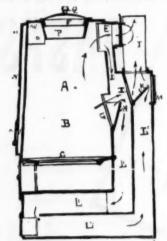
4. The combination, in a stove, of the chamber B, flue E, damper e, flues I I', vent G, opening i, and flue J.

5. The combination, in a stove, of the chamber B, vent G, opening i, flues I and J, and the soft metal tube, supportdoor M. 6. The combination, in a stove, of the cham-

ber B, flue N, exit E, and flue I.
7. The combination, in a stove, of the chamber B, flue N, openings n and n' n', plate O,

flange P, exit E, and flue I.

8. The combination, in a stove, of the chamand a valve. ber B, vent G, flue N, exit E, and flue I.



9. The combination, in a stove, of the cham

ber B, flue N, and flue E. 10. The combination, in a stove, of the chamber B, vent G, guard H, flues L L', &c., and

11. The combination, in a stove, of the chamber B, vent G, flue I', opening i, flue J, and flues

ber B, exit E, flues I I' and L L', &c., and J.

per B. flue N. exit E. flues I I', vent G, and flues cover.

14. The combination, in a stove, of the To Frederick Adee and James Foley, Brooklyn, chamber B, vent G, guard H, exit E, flue I and N. Y.—June 13.—The plumbers' trap made of

15. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flue I, flue I', damper K, opening i, flue J, damper and door M.

16. The combination, in a stove, of the

chamber B, vent G, guard H, exit E, flue I flue I, damper K, opening i, flue J, damper e door M, opening F, grate C and ash-pit D.

17. The combination, in a stove, of the

chamber B, vent G, guard H, exit E, flues I I' and J, damper K, opening i, damper of door M, opening F, grate C, pit D, and flues L L', &c.
18. The combination, in a stove, of the

chamber B, vent G, guard H, exit E, flues I, I' J and N, damper K, opening i, damper e, door M, opening F, grate C and ash pit D.

19. The combination, in a stove, of the

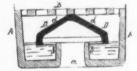
chamber B, vent G, guard H, exit E, flues I, I', J and N, damper K, opening i, damper e door M, opening F, grate C, ash-pit D and flue L L', &c.

20. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flues I, I', J and N, damper K, openings i F n n' damper e, door M, plate O, flange P, grate C

21. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flues I, I', J, N and L L', &c., damper K, openings i F n' n', damper e, door M, plate O, flange P, grate C and pit D.

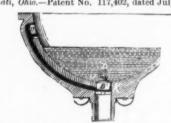
STENCH TRAP.

To Peter Summers, Philadelphia, Pa.-June 6. -The combination of the casing A, having plain vertical sides, and the horizontal grating



clined sides d and ends e, which unite at the top in a narrow strip, secured to the central longitudinal bar of said grating.

WASTEWAY STOPPER-REISSUED. To Joshua R. Gibson and James Powell, Cincin ati, Ohio .- Patent No. 117,402, dated July 25,



1871.-June 6.-1. A wasteway plug having its bearing sides constructed wholly of rubber, or equivalent yielding material.

2. The elastic packing F, mole G, washers H I and stem J j.

WASTEWAY STOPPER-REISSUED.



To Joshua R. Gibson and James Powell, Cincinnati, Ohio,-Patent No. 117,402, dated July 25, 1871.-June 6.-A wasteway plug having its bearing sides constructed wholly of rubber or equivalent yielding material, in combination with a metallic seat or socket.

SHEET METAL CAN.

To Alfred A. Chevallier-Appert, Paris, France June 13 .- Inwardly and outwardly bending heads, vent, guard and soft metal tube on one head. Uses a mandrel having a concave face and central opening-first,

to support body while bot-tom is being soldered to it; next, to support top while ed by an awl, is soldered to

the top; and, third, to support the same while the guard is soldered to the under side of the

A metallic can provided with convex depress ible ends, in one of which is a soft metal tube

SHEET METAL CAN.

To J. F. Merrill, Cincinnati, Ohio,-June 13 -1. The process herein described for constructing a sheet metal can by passing a suitable sheet of metal through rolls to form an outwardly projecting head, placing the sheet around a core, having a support surrounding



the sheet with a clamp, having a counter bore and striking the upper surface of the bead.

2. As a new article of manufacture, and an improvement in the construction of sheet metal cans, the trough I, exterior to the body, and whose outer wall is constituted of two thicknesses, formed by compression of an outer bulge from the body, and has a rim or margin i, having a rounded surface of tinned iron, formed by the bend of said thick-

178,272.-Sheet Metal Can.-George H. Chinnock, Brooklyn, N. Y .- June 6.

Solders upper edge of the soft metal strip to lid, and bends its lower edge inward against and above or below, bead on can. Places glue or gelatine in the chamber so formed. May 12. The combination, in a stove, of the cham- solder strip to cover, insert the cement, and close by bending, or first attach strip to can by New York .- June 6.

18. The combination, in a stove, of the cham- bending, insert cement, and solder strip to

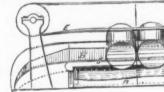
PLUMBERS' TRAP.



two parts, one of which is cup-shaped and cast with a dam in it, and the other is cast with a tubular extension, and the two parts are united by a horizontal, or nearly horizontal, joint.

SOLDERING MACHINE.

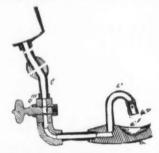
To W. H. J. Howe, North Salem, N. Y .- June 13.-The band, by friction, rolls the cans along the trough, their seams meanwhile projecting through slot in bottom of trough, and into the



solder bath, and onto the incline. Bottom fold of band may be beneath cans, and top fold then propels cans. The combination, is a soldering machine, of the flanged, slotted, and inclined track B, endless band E, and solder trough D.

SOLDERING MACHINE.

To I. Hayes, Philadelphia, Pa.-June 13.-The soldering implement, consisting of the solder-



ing iron proper A, provided with the concavity a', in combination with the gooseneck c', provided with the adjustable thimble c', the rigid tube C, adjustable cock c", handle 5, reser-

APPARATUS FOR TINNING OR COATING METALS. To E. Morewood, Linelly, and J. H. Ro ers, Llangennech Park, near Llanelly, England .- June 13.-The flux box above the coating rollers is provided with pairs of rollers, to regulate the motion of the sheet of metal to be coated.



The flux box A above the pair of costing rollers B, and made with a narrow mouth, so as to protect the flux from the heat of the melted coating metal, in combination with one or more pairs of rollers within said flux, for moving the plates to be coated at the required speed.

WATER HEATER FOR STOVES.

To John A. Frey, Washington, D. C .- June 13. -A water heater contained within a casing.



which casing is open at its upper and lower sides, may be placed over the boiler hole of a stove, and its upper side is adapted to receive and contain a cooking utensil.

178,225.-Pump.-John S. Adams. Elgin, Ill.-

Water passes around the lower valve and returns to the well, for the purpose of emptying the pump to prevent freezing, and for washing out the sand trap, when the pump is provided with such a device.

178,253.-Automatic Air Valve for Water Pipes .-John A. Stacy and John W. Carroll, Cincinnati, Ohio.-June 6.

The valve is attached to a water service pine to admit air to drain it when water is cut off and

the waste open. 178,262.-Gas Burner.-Wm. F. Bonnell, Jr. Boston, Mass.-June 6.

Two receptacles for packing, with expansion chamber between.

178,310.-Hose Coupling .- Edwin A. Leland, New York .- June 6.

178,313.-Pipe Coupling .- Edwin A. Leland,

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The American File Company have the exclusive right to use the Bernot process for cutting files By this method all the advantages of and cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who empley machinery for testing files and steel.

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McCaffrey's Standard American Hand Cut Files and Rasps are warranted to do more work than any other files and rasps in the market.

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READY FOR DRIVING. Manufactured from the best of NOR WAY Iron and warranted to give entire satisfaction.

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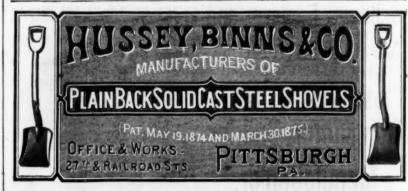
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Paring & Turning Chisels & Gouges, Hazor & Oval Blade Coach Makers',
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Self-Coiling, Revolving NOISELESS

Store Fronts & Rear Windows. FIRE AND BURGLAR PROOF. Also, SELF-COILING

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The Best & Cheapest Shutters in the World.

All keal Estate owners are invited to inspect them a the factory, 192 & 164 West 27th Street, New York

And at London, Paris, Vienna, Melbourne, &c.

MALLEABLE IRON HOLLOW MUN-TEN WINDOW SASH.



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Pad Locks, Railroad Switches, Freight Cars,

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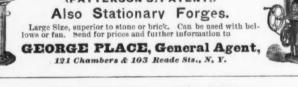
Discounts remain unchanged.

Chisels, Gouges and Drawing Knives of all kinds, Screw Drivers, Screw Driver Bits, Cook's and Douglass Mfg. Co.'s Augers & Bits, Wood and Metal Head Gimlets, Improved Hollow Augers, Blake's Patent Extension Bits, Boring Machines, Chisel Handles, Wood Boxes, Tool Chests.

Our New Catalogue, issued July 1st, will be furnished upon application.



### THE HURRICANE FORGE.

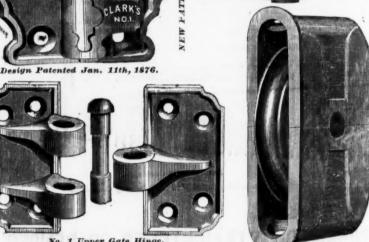


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### **BUILDERS**' HARDWARE.







No. 1 Upper Gate Hinge. for Illustrated Catalogue and Price List.

### J. CLARK WILSON & CO.,

Manufacturers and Jobbers of Hardware. 81 Beekman Street, New York.

### THE COTTAGE FLY TRAP.



Patented August 18, 1874

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For Tin, Japan Ware, Safe and Carriage Manufacturery, Etc. For sale by

PRICE PER DAZEN.

The above cut shows the shape and design of the COTTAGE FLV TRAP. It is Japan Neat and attended to the civiling room or parlor.

The experience of least year warrants us in fully recommending it as THE BEST FLY TRAP.

IN THE MARKET. Is suprasses all ornighs in carceting fries, its capacity for coing so big so simple that a child can bait and manage it. Its price is low as compared with all others. A trial will convince any one that it has no superior. Put up in boxes of one dozen back.

PRICE PER DOZEN,
Special prices made to large dealers. We solicit your orders.

### Russia at the Centennial.

The exhibits from Russia have only been

placed in position within the past few days, but the display may now be considered complete. In the Main Building the exhibit consists chiefly of articles in malachite, bronze, jewelry and furs. The general appearance as seen from the central aisle is one of great magnificence, equal to anything in the building, but the effect is not sustained upon a close inspection, although the display is a very creditable one throughout, and a surprise to any who may have supposed Russia to be only semi-civilized. The most striking feature of the exhibit at first sight is a orgeous bronze chandelier of beautiful design nd splendid workmanship throughout. The chief attraction, however, is the mantel piece, vases, tables, work boxes, &c., in malachite, by Hoessrich & Woerffel, of St. Petersburg. Some of these are of exquisite design and finish, and attract not only admiring crowds, but eash buyers, many of the articles being ticketed 'sold," with name and address of buyer. The mantel piece at \$6500, a pair of vases at \$4500, and a small table at \$2400, however, are still for sale, but smaller articles, such as time pieces, work boxes, &c., go off quite rapidly at prices varying from \$25 up to \$1000. The tables have plain malachite tops upon gilt supports, richly carved and ornamented. There seems to be something magnetic in the character of the malachite, the deep rich green, with its shades of jet black, being irresistibly attractive. The work, however, upon some of the articles is very elaborate, and it is evident that in art Russia can take a leading position. The bronze figures by F. Chopin, of St. Petersburg, are also of great merit, and will take rank with the best in the building. In jewelry and silverware the display is exceedingly fine, Sazikoff, of Moscow, having the largest exhibit, while Tchetchelew, Krumbeigel and Adler, Moscow, have also each fine displays, which for elegance of design, richness of material and skillful workmanship are worthy of great praise. The exhibit of furs is also very striking, Grunwaldt, of Riga, being the leading contributor. The display includes every description of valuable fur made up into ladies and gentlemen's wear, indicating the luxury and opulence of the upper classes. A number of fur bearing animals are grouped on top of the case; in the center a large Russian bear sits upright holding a leopard skin in his paws, and apparently invites some one to examine the article. There are other exhibits, such as hats, caps, &c., from Warsaw, and a ase of gorgeous dresses for the clergy of the Greek church, but nothing of any special interest beyond what we have named. Machinery Hall the Pooteeloff Iron Works Company have a fine display, classified as forows: Finnish lake ores; pig from from do. puddled steel, in blooms, for steel headed iron ails; also for artillery shot; Martin stee ingots; Bessemer steel ingots, used for axles, tires, crank shafts, tools, &c. Samples of rolled bar non; puddled steel, rolled into bars Martin steel; Bessemer steel-all bent cold. Samples of iron rails fractured, also of puddled, Martin, Bessemer and phosphorus steel rails, 160,000 tons of which, we are informed, have been furnished to the Russian Railway is samples of bolts, spikes, fish plates and sole plates, of which 25,000 tons have been fur nished. Railway steel tires, wheels on their axle, and an 11 inch conical shell, that has punched an 11 inch armor plate, are also dis played. These shells are produced by refining pig iron in the Bessemer converter. It is claimed that this mode of producing chilled metal has the following advantages: 1. To give a better purified iron. 2. The high temperature of the refined from allows the metal to be cast quite free from slag. The following is a con densed description of the works of the Pooteeoff Iron Works Company. The works are divided as follows:

In Finland,-iron works Ekaterina, iron works Oravi, iron works Hapakosski.

In St. Petersburg.-Rails and Mechanical Works, Arcadia Iron Works. The company produces in all these works pig iron, puddled steel, Bessemersteel, cast iron and brass cast ings, steel rails, tires, bar iron and steel, railway accessories of every description, artillery shells, steam engines, bollers, etc.

Rough Materials.-Iron ore in Finland worked to 20,000 tons the year. 6600 tons of charcoal pig iron. Old rails worked up to the amount of 2,300,000 poods (41,600 tons) the year, old tires, axles, etc. The remainder of the materials used are partly Russlan, or imported from abroad. As combus tibles, wood and charcoal are used in the works of Finland, and generally coal in St. Peters-

The principal arrangements and plans of the works include: 7 hydraulic motors, 150 horsepower; 39 steam engines, 1980 horse-power; 33 donkey and other pumps; 4 blast furnaces 27 puddling furnaces; 1 puddling furnace (system Pernot); 8 steel melting furnaces (Siemens' plan); 2 steel melting furnaces (system Pernot); 47 welding and reheating furnaces; 11 heating gas furnaces; 1 furnace, system Wilson, for the production of iron and steel direct from ores; 2 Bestemer converters; 8 cupolas; 2 reverberatory meiting furnaces; 314 smith fires; 4 crucible melting furnaces; 66 gas producers; 19 blowing engines and fans; 16 rolling mills 91 steam hammers, from a half ton to 7 tons boats; 10 vessels, barges, etc. The company keeps in its works 40 engineers and foremen.

bars, plates, rails, ingots and tires, as well as bends, twists, knots and fractures, are displayed, showing the perfection to which they have brought this branch of business. The exhibit is very interesting, and some of the articles of special excellence, but, as in the department in the Main Building, the visitor will erience a sense of disappointment in looking for further evidence of Russian industrial skill. In fact, if the country is fairly represented, the impression is inevitable that the manufacturing interests of the country are monopolized by a few noblemen, and there is no general distribution of wealth or mechanical skill.

There seem to be no exhibits of machinery other than those representing the naval, artillery and engineering departments of the Russian government. These are chiefly models, among which we may name the model of the iron-clad Peter the Great, the dimensions of which are as follows: length, 330 feet; breadth, 63 feet; draught aft, 24 9-12; horse power, indicated 10,000; plates, 14 inches; tonnage, 9665; and to carry 4 guns. Another model is of the circular fron-plated vessel, the Popoffka, 120 feet in length, 120 feet in breadth. 95 feet diameter on bottom, 16 inch plates, 3550 tonnage, 12 7-12 feet draught and 4000 horse-power. There are also models of the imperial yacht Lividia, and of a passenger boat running on the Volga, which, however, are in no essential point different to those of American build and design. Models of apparatus for steering, diving, floating docks, lighthouses, &c., are shown, and in connection with naval operations the display is both large and Interesting. There is also a fine collection of scientific appliances from the Imperial Technical School of Moscow, which are used for the study of mechanical arts, but the exhibits throughout seem to be made either by the government or nobility, or else consist of articles of luxury, attainable only by a favored few, while the great mass of the people are unrepre-

### Map of the Chattanooga Mineral District.

We have received from Mr. S. B. Lowe, of Chattanooga, a copy of the large map of the mineral resources of the Southwest, of which we can speak in terms of high commendation. In the lithograph the original map, which is now shown at the Centennial, has been reduced to 30x36 inches, and although the location of the minerals is not yet on it, it shows correctly the contour of all of the mountains and rivers, as have never before been shown, and when the ocation of the minerals are fully shown, it will oc of great interest. The committee are offerng to get the maps published whenever a sufflcient number are subscribed for at 50 cents each, to reimburse them for the expenditure.

Prof. Little, the State Geologist of Georgia, Mr. McCutcheon his principal assistant, who located all the minerals upon the Georgia part of the map, also Mr. Killebrew, well known as the author of "Resources of Tennessee," pronounce the whole result " wonderfully correct in every particular." Subscribers can now get this map at absolute first cost by sending in their subscription.

The following letter, signed by the officers and members of the Tennessee Centennial Commission, has been sent to us. We quote as follows:

as follows:

"The committee to whom have been intrusted the getting up of the mineral map of this iron district, which is now completed according to the original plan, and on exhibition at Philadelphia, have experienced so much difficulty in obtaining the necessary funds to finish the map, that they have concluded to adopt a different plan to obtain the means to pay for getting 5000 copies lithographed, for distribution through the country, and at the Centennial. They propose to offer the map, intographed like sample, with the addition of all the minerals represented by appropriate colors, as fully shown upon the original, to subscribers through the district, and to those who may feel interested in having it published, for the sum of 50 cents per copy; and whenever a sufficient amount is subscribed and paid to furnish the funds to pay for the lithography, the committee will order the work done, and the maps distributed to subscribers. Many have already intimated their willngness to take a considerable number for their own use and distribution are promptly made there will be no difficulty in getting the map ready for distribution at the Gentennial. It is understood that the samples now sent out are only the lithograph; the maps when furnished to subscribers will have upon them the location of all the minerals within the district, in appropriate colors, after the 'The committee to whom have been intrusted n the location of all the minerals

them the location of all the minerals within the district, in appropriate colors, after the manner of the original map.

"It is very desirable to move in this matter at once, and those who feel interested should lose no time in sending in their subscriptions; and we feel that there is scarcely any one within the entire district but what the map would be invaluable to them as a reference, being as it is the only correct and reliable map ever gotten up of the section of country covered by it.

"All communications should be addressed to Mr. S. B. Lowe, secretary, and all remittances

"All communications should be addressed to Mr. S. B. Lowe, secretary, and all remittances made to Mr. W. D. Van Dyke, treasurer, who will upon receipt of subscriptions, issue to subscribers a receipt, setting forth the object for which the subscription is made, and also the fact that should there be an insufficient amount subscribed, that the money will be returned in full to each subscriber."

The Ultimate Power of the Microscope. - Professor Abbe, of Jena, asserts that the limit of a microscope, in showing the structure of the tissues and the character of minute objects, has now been nearly, if not entirely, reached-higher power than that present in use giving rise to optical phenomena which 344 mechanical lathes; 9 locomotives; 3 steam- are likely to completely mask the structure and nature of the object under examination. These observations apply more especially to keeps in its works 40 engineers and foremen, 4000 workmen, permanently—6000 workmen for extra work.

Another fine display is that of Prince Demidoff, of the Necjiny Tagilisk Mining Works, and the arrangement of the exhibits extremely effective. Every description of iron, steel and copper is shown, as well as the ores from which they are produced. Sheets,

# CE CO., SALESROOM, 117 Chambers St., N. Y.

FACTORY, Fairhaven, Mass. AMERICAN Upholstery, Gimp, Brush, Card, Pall and Cheese Hox Tacks; Leathered, Tinned and Iron Carpet Tacks; Bright and Blued Pinishing Nails; Cigar Box and Chair Nails; Trunk and Clout Nails; Brads, Patent Brads, Copper Tacks and Nails; Iron, Zinc, Steel and Copper Shoe Nails; Polished 2d and 3d Fine Nails; Roofing and Slating Nails; Roofing Tacks, Tinned Tacks and Nails of every variety. Also, Bright and Japanned Lining and Saddle Nails, Tufting Buttons and Nails of any color Any size or style of Tack or Nail made to sample. Orders sent to either Factory or Salesroom will receive prompt attention.

Rochester, N. Y.



### HIGHWAY BRIDGES. Wrought Iron

WATER PIPE.

### factured for Water Works, Oil Lines or Gas Mains. General Riveted Work

Orders Solicited from Civil Engineers

and Contractors.

mpanying engraving represents the Spring field Bridge, built by the Leighton Bridge and Iron Works.]

CO., Bridgeport.

Any Dealer is aware that in an ordinary Hand Saw, the front cut is the effective cut, and drawing back the saw has little effect by reason of the slant edges riding over the fibre, as the Saw is drawn back. The difference between the front cut of a Hand Saw, and the back cut, is the difference between the Lightning Saw teeth and all others; for all other saws are set one point and ride on slant edges. By setting two points of my M the same side and the next two the other, I conceal the slant between them, and operate wholly by the oustide of a nearly vertical M tooth. Standing nearly vertical the two points of the M occupy the same space as the old V tooth. One point only is cutting and the other follows in the slit behind it to cut in the same manner, in the return motion, thus doubling the cut upon the same base and space of tooth. This construction also gives the breadth and durability of nearly an inch of steel instead of a single slender scraping point, and presents the upright instead of the slant edges to the timber.

Any one can in a moment test the principle by comparing the front and back cut of any V tooth Hand Saw. My new patent of March 28th, 1876, allows the saw-dust perfect clearance; the arch slightly widening to the points of teeth renders it impossible for green or resinous saw-dust to be retained, while the slightly increased breadth at base of tooth gives the durability so much advocated by parties who have round-edged files for sale. Slightly pyramidal, the outer edges are as upright as the front cut of a Hand Saw, and the back slant cut is concealed in no other Saw than mine, by setting the two points of M to cut in line instead of alternately. Thus by this new Patent I avoid all "overhang or under-cut," avoid all tearing, and to the matchless speed of the Lightning dress and set, add the durability of sharpening, and sweet cutting so much and the back stant cat is conceased in no other saw than mine, by setting the two points of M to cut in line instead of alternately. Thus by this new Patent I avoid all "overhang or under-cut," avoid all tearing, and to the matchless speed of the Lightning dress and set, add the durability, simplicity of sharpening, and sweet cutting so much admired. I thus adapt the Lightning teeth to universal use, in all Hand, Pruning, Buck, and Cross-Cut Saws. The concave in the centre of the M saves files, and renders it impossible to file the tooth out of shape.

A 10-inch log was sawed off in 17 seconds by hand with a Lightning Cross-Cut Saw, at Pennsylvania State Fair, on September 30th, 1874, before President Eby; W. B. Lawson, S. S. Hoagland, and other officers of the State Board, timing.

\$1000 challenge to any responsible saw manufacturer, to match the Lightning saws in speed of cutting and ease of sharpening. This patent saw tooth has rece dicated by U. S. Court decreeing costs and damages for infringements. Beware! 70 CENTS PER FOOT.

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suit the times. Our new Patent Fancy Open Work Cap Butt, with Ornamented Knuckle, in Real and Imitation Bronze, and our Nickel Plated Cap Butts, with concealed Screws, are the handsomest in the market, and are attracting much attention. While making plain and japanned goods a specialty, we are prepared to meet the increasing demand for ornamented bronze and nickel plated House Trimmings. Goods packed in boxes or bundles, as may be preferred. For catalogue and price list address

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SAMUEL HALL'S SON & CO.,

### BUSINESS ITEMS.

MASSACHUSETTS.

The South Boston Iron Company is engaged n transforming twelve 10 inch smooth bore Rodman guns into 8 inch rifles for the War De

Kimball & Merrit, machinists, Abington. nake tack and shoe nall machinery, heel mahines, counter machines, heel presses, sole eather strippers, &c., and deal in shoe ma chinery of all kinds. They also own the patent and are making the Dunham quilting and riveting machine for nalling on the soles and quilting the bottoms of boots. It is meeting with very good success, taking the place of handwork. It will drive 500 nails a minate, all the way from a small counter sunk nail to a large hob or Hungarian one. They also are making a nailing machine adapted to all kinds of surface and channel work, which is capable of nailing on 1200 pair of soles per day.

The Abington Tack and Machine Associa tion, formerly John Hyslop, Jr., are now engaged in the manufacture of tack and nail mahinery of all kinds for all parts of the world, mploying 12 hands and turning out 50 machines per year. They have also in running order 12 tack and nail machines for the manufacture of tacks, nails and brads

The Knowles Steam Pump Works, Warren nave lately completed, for their display at the Centennial Exhibition, a miniature nickieplated steam pump 12 inches in length, and in complete working order.

The Lowell Machine Shop Company are ending machinery complete for a cotton mill in Macon, Ga., in through cars from their works via the Merchants' Dispatch Line. The car trucks are changed at Louisville, Ky., those suitable for the five foot gauge of the Southern railroad being substituted for the Northern tandard guage. By this manner of shipment the machinery requires no transshipment. This is the first instance, we believe, of the shipment of unboxed machinery to the South from Lowell, and much lessens the cost of freight. Machinery for a large cotton mill, at Atlanta, Ga. will soon be sent via the same route.

### PENNSYLVANIA.

Reis, Brown & Berger's mill is idle. There is a rumor that a well known blast furace concern in the Shenango Valley is endeavoring to make a contract for 30,000 tons of native ore, similar to that used in the Wampum With a mixture of half Lake this ore makes a splendid iron, and with one-fifth Lake it produces pig similar to the irons of the Allegheny Valley.

There is quite a breeze among the coke men. Some time ago a number of them formed a society for the purpose of regulating the sale of their products, and appointed a board of management. All went well until some of the parties found it more convenient to regulate their own sales, and some of them appeared to try the experiment. They tried it and raised a row in the camp, which led to the withdrawal of some of the members. Of course this raised good deal of bad feeling, and now there is talk about suits being brought to keep the deserters in their place. How it will end we an't tell, but it is evident that the business will be done through its own channels again in a short time. - Connellsville Tribune.

The Keel Ridge Furnace, at Sharon, Kimberly, Carnes & Co., has blown out.

Mr. M. C. Herron, formerly of the Ormsby Furnace, is running the Westerman furnaces. An accident to the machinery at the iron works of Kimberly, Carnes & Co., at Newcas-

works of Kimberly, Carnes & Co., at Newcastle, will cause a suspension of operations there
until about the 10th of August.
Douglas Furnace No. 2, which has been in
blast since last September, was blown out last
Friday. The old Sharpsville Furnace went out
of blast on Sunday. This leaves but one furnace—Spearman No. 2—in operation out of the
nine in Sharpsville. This is in accordance with
the programme stated some time since in
The Iron Age. Ore must come down or pig
go up before these furnaces will blown in
again.

again.

The Montgomery Iron Company's furnace at Port Kennedy has blown out. This furnace has been in continuous operation for the past five or six years. It will be put in repair, but will not be put in blast again until there is a revival in

Seyfert, McManus & Co., McIlvain and Craig & Koch are running their mills about three-

Co. are the only ones running in and about Reading.

The P. & R. R. R. rail mills are running full capacity, filling an order for 62 lb. rails for the Delaware and Hudson Co.

The Ætna Iron Works (limited), Newcastle, are not running. They have had several breaks

lately, and have stopped to put in new founda-

### PITTSBURGH AND VICINITY

The United States Iron and Tin Plate Com-

The United States Iron and Tin Plate Comany report orders as accumulating.
Shoenberger & Company are shipping horse
those to the Schuylkin Arsenal. Their shoe
was adopted by the Board of Examiners of the
Juited States army, at a late session, as one of
the shoes to be used in the army.
The Westinghouse Air Brake Company has
presented each of its employes with a ticket
to and from the Centennial.
Palmer's Mill is idle for repairs.
OHIO.

### OHIO.

The Zanesville Furnace, Ohio Iron Co., blew out last week after a continous blast of nearly four years, the fire never having been out of her in that time. This, for a coke furnace, is a rand record.

The salamander of No. 1 blast furnace of the Cleveland Rolling Mill Company has now been cleared out. Three very heavy pleces were blasted out by means of the dynamite. One piece, weighing over 5½ toos, was hauled away in the dump, and two pieces, weighing over 10 tons each, have been buried in the cast house, being too heavy to haul away.

At the machine shops of Tapin, Rice & Co. there has just been completed the largest pulley ever made in Akron. It is for the Cascade Mills of F. Schumacher, and weighs 7 tons. It is 14 feet in diameter and has a face of 42 inches in width. It was east in two separate wheels

Mills of F. Schumacher, and weighs 7 tons. It is 14 feet in diameter and has a face of 42 inches in width. It was cast in two separate wheels and then bolted together through the center. At the same shop a core wheel, 12 feet in diameter and weighing 7200 pounds, is being turned out to be used in the same mill as the other.—Beacon.

Baughman, Curtis & Co., Toledo, recently made two large heaters, of extra size for the Union Rolling Mill Co., of Chicago; the heaters are 5 by 14 feet and the filter 4 by 5 feet in size. The filter is used in purifying the Chicago fiver water for use in their boilers. A saving of fifteen tons of coal per day is reported in the use of the heater and filter. This firm manufacture the Armstrong heater, filter and lime extractor combined; also, Perkins steam stationary fire and tank pumps, and power and steam boiler faced pumps. They have 25 men in their employ, the annual product of the works being equal to about \$60,000. They occupy a four story building 33 by 132 feet in size, with an L 86 feet long. They find a market in all parts of the United States.

Washington Furnace, in trying the stone-coal experiment, came near chilling up last week.

Scioto Furnace, after having in vain tried to run on a fire brick hearth, has now put in one of sandstone and is doing well. She pays but 4 cents for charcoal.

### KENTUCKY.

Raccoon Furnace is now in biast making a good quality of charcoal iron. Her experience in stone-coal iron, though demonstrating the fact that her stone-coal is well adapted for the manufacture of that class of pig iron, being the equivalent of that class of pig iron, being the equivalent of that of Jackson, has not been a financial success, which is mainly due to the size and shape of the furnace. Still her lessee and manager, Col. Worthington, deserves much praise for his untiring efforts to be as successful with stone-coal as he had been with charcoal iron making. The greater part of the charcoal now used is made on the furnace bank, whither the wood is hauled from of the charcoal now used is made on the furnace bank, whither the wood is hauled from near choppings. This reduces the cost of charcoal very materially, and enables the furnace at the same time, to make a better yield on the wood and obtain a fresh smelling ruel almost directly at the tunnel head.

Hunnewell Furnace will blow out next month to put in a new hearth.

Pennsylvania Furnace is now working very satisfactorily. She had some trouble with a tuyere burning out week before last, causing a little back-set, but is now doing as well as ever.

The Tygert Valley Iron Co., say: "The cost of charcoal would not exceed four cents per bushel, so that the cost of making pig iron would be amply paid for at \$13 per ton at the furnace, including all expenses. Add to this \$4 for transportation, and the iron could be delivered at Riverton, on the Obio River, at a total cost of not more than \$17 per ton."

The Louisville Car Wheel Works are running on full time, and doing an extensive business in their line.

### TENNESSEE.

The Chattanooga Saw Works have rented one of the Stoops buildings on Market street, where they will soon be in readiness to begin operations

MICHIGAN. The shipments from the Lake Superior ore district, for the week ending July 19, are as follows:

From From	Place.       1875.         Marquette.       192,347         Escanaba.       95,706         L'Anse.       23,430	143,292
	Total	

The extensive steel works which have been in process of erection by the Vulcan Iron Works Company for some time past, at South St. Louis, were completed on Tuesday, and made their first "blow." These works are for the exclusive manufacture of Bessemer steel rails, costing some \$600,000, and are reported as having large orders to fill. be put in blast again until there is a revival in the Iron business.

The Waynesburg Independent says: The directors of the Washington and Waynesburg Railroad Company, at their meeting on Tuesday last, authorized President Richey to buy \$10,000 worth of iron. This is a judicious move, and looks to the final completion of the railroad.

P. L. Weimer, of Lebanon, has received an P. L. Weimer, of Lebanon, ha

The two Keystone furnaces of Bushong & bundred years there has been in almost perpetual Co. are the only ones running in and about agitation a scheme of running a canal over the Philadelphia Times says: For the space of one Alleghenies to connect the Potomac River and the Youghiogheny. Gen. Washington first conceived it, and became the first president of the Potomac Company. The illustrious General Simon Benard, Secretary of War of Louis Philtions.

Henderson & Co. are building 30 new coke ovens on their old works, Dunbar.

The chain factory at the Westerman Iron Works is one of the institutions of our town. It is well worth a visit to the place to see the chain makers handle the iron and form them into links and the links into chains. The foreman and employes understand their business.—

Sharon Herald.

Beyen out of 77 coke ovens are in operation at Newcastle. ippe and a staff officer of Napoleon, surveyed Seven out of 77 coke ovens are in operation at Newcastle.

The Lochiel Iron Works, at Harrisburg, are supplying the rails for the Emlenton and Edenburg Narrow Gauge Railroad, in the Clarion county oil district, and which is to be completed in October.

The Iron rolling mill of the Lackawanna Iron and Coal Company, at Scranton, was the scene of a severe explosion Tuesday noon, during the absence of the workmen at dinner. A large quantity of gas, owing it is said to the temporary naction of the furnaces, accumulated in the main blast-pipe, caught fire and exploded with terrific force, tearing the pipe to fragments, and shattering the roof and walls of the building in which it was confined. No lives lost. monstrous lockages. The last performance in

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Drills for Coes, Worcester, Hunter and other Hand Drill Presses. Beach's Patent Self-Centering Chucks, Center and Adjustable Drill Chucks, Solid and Shell Reamers. Drill Grinding Machines. Taper Reamers, Milling Cutters and Special tools to order.

All Tools exact to Whitworth Standard Gauges. GEO. R. STETSON, Supt. EDWARD S. TABER. To



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ods used by Plumber

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New York, Thursday, August 3, 1876.

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### The Problem of the Hour.

During the past few weeks we have devoted a liberal share of our editorial space to the discussion of what seems to be the most serious question of the time-what can be done for the unemployed labor of the country. We have shown by argument and proved by facts, that no general diversion into agriculture of skilled labor from the manufacturing industries, nor of unskilled labor from the occupations which our rapid internal development has so largely stimulated since the war, is practicable. Were such a diversion forced, or even permitted, we should see the whole country overrun with "tramps," as some parts of the West already are. We have further shown that, in our judgment, provision for the employment of idle labor must be made where that labor army. In doing this he accomplished is found, and that we only make a bad matter worse when we transform the resi- he encouraged the soldiers to work. We dent pauper into the vagrant. He is a cannot go into the details of the plan by pauper in either case, but in the one he which he made the army a vast industrial can be systematically dealt with, while in system, but it possessed this advantage the other he can more easily clude the laws over any other military establishment ever for the suppression of pauperism, and his organized: while not interfering with the restoration to useful citizenship is sur- efficiency of the soldier or his availability rounded with difficulties so great that it is for military service, it did not withdraw commonly regarded as impossible of ac- labor from either agriculture or manufac-

Under existing conditions, it may be assumed that the skilled and unskilled labor its accustomed occupations. The manupartial paralysis, the building trades are at a standstill, railway extension and public improvements are indefinitely postponed, and labor stands with idle hands in empty pockets waiting for the long hoped for, but long delayed, improvement in general business. The number of men and women who, pending such revival, can manage to make a living in one way or another, though large in the aggregate, is small in proportion to the number seeking employment. Were the public fully aroused to the importance of finding work for as much of this idle labor as possible, we have no doubt that the number who cannot find work would be greatly reduced, but there would still remain a vast army of paupers-larger now than ever before in the history of the country-which must be provided for. They are now roaming about from place to place, singly or in companies; they are swarming like locusts in the agricultural districts, and maintaining a reign of terror over the farmers and town authorities, committing depredations in all directions, and everywhere terrifying women and children, upon whom they have committed unnumbered outrages. This is not an evil which will cure itself. Unless we promptly stamp it out, it will quickly attain the proportions it reached in Belgium in the latter part of the last century. There is already a startling parallel between the newspaper accounts of the condition of affairs existing in the tramp infested districts of the West, and that reported in Belgium when Count Rumford entered the service of the Duke of Bavaria in 1784. The Count says : "The number of itinerant beggars of both sexes and all ages, as well foreigners as natives, strolling about the country in all directions, levying contributions from the industrious inhabitants, stealing and robbing and leading a life of indolence and the most shameless debauchery, was quite incredible." Equally incredible seems the well authenticated stories daily received from the West, of tramps moving in companies of from 100 to 500, taking possession of railway trains and rendering the carrying of armed guards by the railroads a necessary precaution for the protection of passengers. Rumford further tells us that the Belgian vagrants were "stout, strong, healthy, 'sturdy beggars, for the most part." The country was overrun with them. Children were stolen and maimed, crippled or disfigured to make them objects of sympathy; life and property were both insecure, and the evil had reached such proportions, in spite of numerous unsuccessful efforts to suppress it, that begging had become "In a manner interwoven with the "integral relations of society." In four years 10,000 were arrested and handed over to the civil magistrates, and in Munich alone there were 2,600 beggars out of a total population of about 60,000. The people were so tired and discouraged that every proposal for remedy was looked upon as "a mere job," and until Rumford took hold of the evil it continued to spread steadily. Its ramifications were so extensive and far-reaching that its reformation seemed impossible. The beggars organized what amounted practically to a governcities, and in fact every one who had opportunity, joined the great army of beggars. This was the condition of affairs when the wonderful man from whose writings we have gathered these facts, undertook the task of suppressing mendicancy. Knowing, as he did, that the people had but little faith in the efficacy of measures to rid the kingdom of beggars, he de termined, as he quaintly says, first to do it and then ask them to support him in his undertaking. The story of his labors and their results not only possess exceptional historical interest, but they have a direct

now presents itself to us in this country. Count Rumford was a military man, and his first step was the organization of the what had never been done before, that is, tures to any appreciable extent, and while

practical bearing upon the problem as it

of the country cannot find employment in found more than self-sustaining could all 16 to 17 per cent. premium, even before is strengthened by the reappearance of purthe benefits of the system and its ramifica- the terms and conditions of the loan were chasers for that purpose. facturing industries are suffering from a tions have been taken into account. Hav- known. The amount subscribed was far ing put the military establishment on this basis, his next project was to rid the country of beggars and make the pauper population not only self-sustaining but contributory to the public good. The army was largely made use of in policing the trous defeat in war is to be celebrated in country and arresting the vagrants. On 1878 by a second Industrial Exposition on the 1st of January, 1790, Count Rumford the Champs de Mars, Paris, which prompersonally made the first arrest with his ises to overshadow the Centennial Exhibiown hand, his reason for this being to set tion. From a report of the Minister of an example which the soldiers would not Commerce, lately submitted, we gather be ashamed to follow; and in one hour's some interesting details. The buildings time the streets of Munich were cleared of are to cover an area of 240,000 square me beggars. Realizing that imprisonment ters, arranged like the squares on a ches would not reform vagrants, he set about board. The products of the exhibiting the task of changing their tastes and de- nations will be arranged longitudinally, so sires. To quote his own words—his first object was to make them happy; the second, to make them virtuous. They were washed, fed and set to work at some useful employment in large, comfortable and even "elegant" workshops provided for the purpose, and an effort was made to make the paupers feel that they had been elevated to a higher plane than that from which they had been taken. On account of their awkwardness and ignorance of all kinds of useful employment. it was necessary to encourage them by paying them comparatively high wages for what little they could do, and in order not to discourage them when it was necessary to obtain the results of their labor at a lower price, they were transferred to other kinds of work in which their greater skill rendered their labor more remunerative to the State, and at the same time more profitable to themselves. It must not be supposed that these institutions were prisons. They were government workhouses, in which employment was offered to those who were restrained from following the only trade they knew-that of begging. No one, so far as we can learn, was compelled to go there and work, and no one was obliged to live in the government buildings who had a home elsewhere; but they were such pleasant places of residence that they were generally preferred to homes in the tenements of the city. No one could beg, and the only alternatives were to work or to starve. The system worked perfectly, and before the public were fully aware what the Count was about, he had extinguished the evil which had so long menaced the life of so-

> The funds necessary to carry out this gigantic undertaking were, in the first instance, obtained from the sovereign: When its success was established, voluntary contributions began to pour in. Legacies aggregated a large sum, and finally the money realized from the sale of articles made in the workshops were added to the income. After the system had become thoroughly organized, the workhouses not only became self-supporting, but earned a revenue for the state.

The work which Count Rumford, a New England engineer accomplished so promptly, successfully and economically in Belgium three-quarters of a century ago, was a thousandfold more difficult than that which devolves upon us at this time. The evil we have to contend with is similar in kind to that which then existed in Belgium, but it is by no means so ment of their own, and levied onerous extensive or deep rooted here as there. If taxation upon farmers and tradespeople, it was possible to suppress pauperism then, The vice permeated all classes of society, 1 it is also possible now. Sentimental conindustrial condition of the country, vagrancy and pauperism are crimes against society which society cannot afford to tolerate. We must first give a man a chance to work for his living, and then compel him to choose between the alternatives of

labor and starvation. It would not be practicable now to follow in every detail Count Rumford's plan, but our charitable and reformatory systems must be organized upon the same principle if we would have them in any degree successful. We commend to all who are interested in the subject a careful perusal of Count Rumford's account of his work in Belgium, which will be found in his published writings.

### The Paris Exposition of 1878.

While the situation in Germany is one of general prostration and anxiety amounting almost to panic-the reaction from the intoxication of speculative excitement following the payment of the war indemnity -France is in the enjoyment of a very

in excess of that called for, and the people enterprise is manifested throughout the new Republic, and the nation's recovery from the ruin and humiliation of disas that the visitor, proceeding transversely can find in line all the products of a given kind belonging to the different nations. This is a much better system than has been observed at Philadelphia, where the ar rangement seems to be utterly promiscuous, and certainly is utterly confusing. It is estimated that the buildings and improvements to the grounds will cost over 35,000,000 francs, which is about 12,000,000 more than were expended upon the Exposition of 1867. As the total re ceipts, including the proceeds from the sale of buildings and materials, are estimated at about 19,000,000 francs there will be a deficit of something over 16,000,000 to be provided for, which will be met by an appropriation from the national treasury. Whether the world will be quite ready for another international exhibition two years hence may be con sidered doubtful, but the French people have unbounded faith in themselves and in the attractions of their gay metropolis, and as two years afford time for many changes and much progress in this age of steam and thought, the second Paris exposition may be even more successful and profitable than the first. Probably the number of Americans who will go to Europe in 1878 will be greater than the number of Europeans who have come or are coming to our Centennial, but we fear that the representation of American manufactures and art products will be small, unless the large hopes of commercial benefit are more fully realized in the results of the Centennial than they now promise to be. The people of this country have had about as much international exhibition as they can digest for some time to come, but the number of our citizens who would avail themselves of any reasonable excuse for a summer excursion to Paris is legion.

### The Lead Markets.

European lead production has varied little of late years; from 253,000 tons it has gradually reached 265,000. In England it has fluctuated between 54,000 and 70,000. Spain has kept tolerably steady at 67,000, while the German output has been on the increase, rising from from 49,000 to 62,000 tons. Whatever increase there was has been absorbed with ease by the growing demand for purposes of armament, the introduction of water-works and lead pipe in many cities of central Europe, and a steady trade in the metal with China and other Eastern countries. But notwithstanding the fact that distribution to actual consumption, as well as export, suffered no important diminution, but came fully up The vice permeated all classes of society, and to the extention of the extent of their opportunities to beg. Shepherds, children of farmers living along frequented highways, servants in must find it for them, and whatever the

has not been an exception. The continual failures in England and on the Continent have spread great apathy through all branches of trade and killed speculation, despite the abundance and cheapness of money. The winter on the other side was an unusually long and severe one, and when at length spring trade opened, the political horizon became overcast, much to the detriment of commerce. Both dealers and consumers consequently showed indifference to replenishing stocks, although as regards lead in particular it was generally admitted that they had been permitted to run low. Only within the last week, according to cable dispatches received, has the market over there assumed a scmewhat brighter aspect, in consequence of government purchases made for French and Russian account.

The events on the Turkish froatier have been reported to us in such an incoherent comfortable general prosperity, and her and contradictory shape that it is difficult people are manifesting a great deal of to determine as years and draw in of business nave seriously land assume larger proportions and draw in glut is only seeming, not real.

In 1872, when there was a great abundance people are manifesting a great deal of to determine as yet whether the war will

the army was apparently an expense to the has lately contracted a loan of \$24,000,000, certain, however, that armament by all of country, it would probably have been and the securities issued were bid for at them is going on uninterruptedly, and lead

> With us production has been making headway much more rapidly than in Eu were eager to invest. The same spirit of rope, as will appear from the following comparisons :

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1868												14	630	3	1	87	8.												46,66
869												15	653	3 1	1	87	4.												53.21
1870								ì				15	92	15	1	87	5.												53,00

We have nearly quadrupled our output in ten years, and more than doubled it since 1872. This has enabled us to gradually dispense with foreign importation, except in cases in which the drawback held out an inducement, and soft lead of American production is superseding by degrees that formerly imported for corroding purposes, thus rendering us pretty much independent of the European market. A good deal of the profitableness of mining argentiferous lead in Utah and Colorado would. of course, be lost should silver further decline, but we do not believe that production would be seriously curtailed thereby. Lead production in the United States has become an element of national activity so singularly favored in other respects that the transient fluctuations of silver, or even its permanent depreciation, caunot well hamper it. With a revival in business and building our capacity of consumption will grow fully up to the increased production. one item, that of white lead alone, requiring upward of 45,000 tons annually in times of normal industrial activity.

In our own market the spring trade in lead has again been a disappointment, yet prices, after opening at 5.90c., gold, early in January, rose to 6.50c., to 6.621/c., gold, in March and May, and receded to 6.25c., gold, where they have remained. The advance was mainly brought about by speculation; without its interference we should, in all likelihood, have stayed where we began, by reason of the general mactivity and rather liberal supply for the West, favored by exceptionally low freights.

The lead market on this side will now be put to a fresh test, on the advent of the fall demand for shot, etc. If appearances should prove encouraging, speculation may step in once more, and a short excitement, accompanied by an advance, may ensue, especially should the European rebound prove lasting. Without some such external help we do not expect much beyond a bare maintenance of prevailing rates, even assuming that this time we are to have a brisker fall demand. Consumers, it should be added, foreseeing a more active fall trade than we had last year, have actually begun to secure quite a supply, mostly "to arrive," amounting to some 1000 to 1300 tons, all bought within the past eight or ten days at current prices.

### Over-Production or Under-Consumption.

We are glad to see that The Iron Age is no longer alone in the position it has assumed since the "hard times" began, that the trouble is not with production but with consumption. The Chicago Inter Ocean of July 27th has the following:

Ocean of July 27th has the following:

For many months a persistent yet utterly false outery has come from a portion of the press of the country, particularly from the newspapers of free trade proclivities, that the long-continued disorganization of industry and trade is attributable to over-production. As proof, we are pointed to warehouses crowded with goods which cannot find purchasers; to manufacturing establishments running on part time, with a reduced force of working people: time, with a reduced force of working people to £20. 5/.

The decline since the beginning of this year has to be attributed rather to general than to special causes. There has been a dull feeling in metals in Europe, and lead because he has cleared too much money. The greater the quantity of things produced in the United States the greater must be the aggregate of wealth. When the results of the census of 1870 had been declared, the figures were welcomed with pride and exultation, as showing signal progress in the accumulation of property through the activities of production, and as indicating a more rapid increase of wealth than in the previous decade, notwithstanding the vast waste and destruction of both values and dicating a more rapid increase of wealth than in the previous decade, notwithstanding the vast waste and destruction of both values and lives during a protracted and great civil war. It now seems to be in order among a certain class of people to deplore such a movement of the productive forces, accelerated in pace, as a misfortune, and as the true source of the existing stagnation of business in tois country. Such a position is extravazantly non-sensical. Nothing should be plainer than that over-production cannot take place so long as human wants for the things produced remain unsatisfied, and that each person's share in the general work of production supplies him with the means of gratifying his needs or his desires. Are the masses of our people to-day so fully furnished with those articles of convenience, comfort or luxury of which it is said there is an over-production, that they feel no lack? Unless this be so, there must be under-consumption, not over-production. If there are hundreds of thousands of individuals who would like to own a plano, or a sewing machine, or a new suit of clothes, or what not, but cannot afford the purchase, because they have lost employment and wages, or because the profits of business have seriously fallen off, then the glut is only seeming, not real.

In 1872, when there was a great abundance

of all things, very much greater than now, and production was exceedingly active, there was not any complaint of an overwhelming surplus. What is now the matter is under-consumption. Some 2,000,000 men and women are compulsorily idle, who then were regularly employed. The earnings of these people amounted probably, as a total, to \$5,000,000 a day, or to \$1,500,000,000 a year. This purchasing power, vast in the aggregate, has disappeared from the marts of trade, depriving of a market a wast quantity of articles that otherwise would have been purchased and consumed. Production itself declines because of this extensive failure of demand. Restore the lost purchasing been purchased and consumed. Production itself declines because of this extensive failure of demand. Restore the lost purchasing power, in the shape of wages paid for daily work, then what is unreasonably styled overproduction would vanish. For awhile, what would need to be termed under-production would supersede the so-called over-production. If all the idle laborers could be set at work, and kept at work, the industrial movement would soon get safely on its legs to stay there, and thrift with conteniment would once more visit a stricken land. The rapid circulation of commodities, attainable only through steadily employed labor at good wages, constitutes the material prosperity of our national life. Meantime, enough things are not produced to satisfy the wante of the people. There are more mouths to be fed, more backs to be clothed, more feet to be shod, more heads to be sheltered, more bodies to be warmed, and more minds to be instructed, in 1876, than there were in 1872; yet the quantity of things produced is smaller. The over-production is apparent, not real—constructive, not actual—a ratio between production and the cripoled power to is smaller. The over-production is apparent, not real—constructive, not actual—a ratio between production and the erippled power to consume, not between production and the urgent needs of consumers. It may be added that this allegation about over-production, as the cause of the present disorganization of industry and business, has proceeded from those who favor a system of partial free trade, and who claim that protective duties on imports inevitably lead to searcity—a self-contradiction which is superlatively ridiculous; for how is it possible for a tariff system to tend unavoidably to scarcity, yet actually end in superabundance—in excess of manufactures—in over-production? We leave this abourd paradyx to be solved by those who think they can solve it.

So far as regards the cry of over-produc-

So far as regards the cry of over-production, the above agrees perfectly with the views expressed in our issue of July 6th, in an editorial entitled, " Are we Suffering "from Over-production?" We do not believe, however, that the advocates of complete, or partial, free trade are responsible for the cry of "over-production." On the contrary, we have found the idea firmly planted in the minds of life-long protectionists, especially manufacturers. It is in the fullest sense a popular error, and those alone are responsible for its currency who cannot, or do not, reason beyond the fact that we have a present supply of useful commodities in excess of the present demands of trade.

It by no means follows, however, that because over-production is impossible, so long as there are unsatisfied wants or ungratified desires for the article produced, that it is the part of wisdom for the manufacturer to go on producing what he cannot sell. He must, in all cases, be governed by the demand which he aims to supply. Suppose he is a manufacturer of stoves, and his foundry is capable of turning out 50,000 stoves in a year. There may be, at a reasonable estimate, two millions of families who want new stoves, and if they had anything to give in exchange for them which the manufacturer or the dealer would accept, they would purchase them at once. The manufacturer knows, however, that under existing conditions the wants of a very large proportion of those needing new stoves must remain unsatisfied for the present, and he has no other recourse but to limit his production to the number of stoves he can reasonably expect to sell. It makes, practically, but little difference to the individual manufacturer, so far as his immediate policy is concerned, whether overproduction or under-consumption compels him to limit the number of stoves he produces; but it makes a vast difference as affecting his forecast of the future. For the present he must make no more stoves than he can sell, economy in production must be looked after down to the smallest it means that the man in question is sure

### duction carried on at the maximum of our The Value of Skill to the Mechanic.

capacity.

goods to the very lowest point at which it is

buy them, does not justify him in making

more stoves than he can sell. The same re-

policy will lead the manufacturer to re-

strict production when consumption de-

wants of the community are far in excess

of our ability to supply them were pro-

It has been often asserted that one of the many had effects of trade unionism in the mechanical trades is the establishment and mechanics which would not exist were by arbitrary rules and regulations fixing wages at so much for a day's or an hour's work, irrespective of the amount which the mechanic is able to accomplish in that complaint, which, however, seldom comes from those most affected by the evil comseeking a reason for this seeming content. I honor, responsibility and profit.

of all things, very much greater than now, and ment with a system which is calculated to restrain the ambitious mechanic and place skill and industry on a par with ignorance and indolence, we conclude that the work ingmen do appreciate the nature and extent of the evil to which they quietly submit. It is, of course, quite satisfactory to the unskilled, careless and indolent, whose only desire is to earn the most wages for the least work; and as these constitute an unfortunately large majority in many trades, it is not to be wondered at that the influence of the unions is exerted to maintain this unnatural equality, by which inferior workmen derive some benefit from the exceptional skill of others which goes to raise the general average. The skilled workmen, on the other hand, probably think that as they must perforce stand on a level with those less skillful than themselves, they gain no personal advantage from their efforts in the direction of selfimprovement; and the apprentice, feeling that the end and aim of his apprenticeship is graduation into the ranks of the journeymen, in which one man is as good as another, has little incentive to study or devote special attention to the acquisition of a knowledge or dexterity above the average.

> If such opinions are entertained by our mechanics or apprentices, we think it will be easily shown that they are reached by illogical reasoning from false premises.

> From the most selfish of motives, the workman would find it better for himself to attain the highest possible degree of skill, rather than be content to drag along at the level of the ordinary journeyman. The finished workman accomplishes a given amount of work not only more quickly but with less physical exertion than the half skilled mechanic. He is master of his work, and is never an noyed by finding that it has mastered him, a thing which is constantly happening to the ordinary journeyman. In many branches of business, the amount of work done by the man who does not understand his trade is many times greater than is necessary, and here is the reason which appeals to him in the most direct way, urging him to become more skillful. The best man is the most valuable to the employer, and, although he may not earn wages in proportion to his value as compared with others less accomplished, he is parted with reluctantly and only in case of necessity, while the slovenly, half skilled mechanic is dispensed with as soon as he can be spared, and often to make room for a better man. The poor workman is never wanted anywhere, nor by anybody; he is tolerated when the demand for labor is great, but that is all. This is something which no trade union can change. The interest of the employer is with the best man, and he will take the greatest pains to keep him, and, while the action of the union may prevent the payment of any larger wages to one than the other, yet it will be found in the end that the best man has made the most money and has had the easiest time.

The skillful, industrious workman is always in the line of promotion. It is to him that the chances for getting into an 'easy place" always come. If a foreman, or overseer, or man for special work or duty is wanted, the best workman, other things being equal, is generally the favored one. It is no unusual thing to have employers say of a particular workman of exceptional skill: "No money would tempt me to part with him." This, of course, is an exaggerated form of expression, but detail, and he must encourage a larger of a place so long as the employer has any consumption by reducing the cost of his work for him to do, and that his chances for promotion are good as soon as there is possible for him to make them. Because a a vacancy to be filled. We call to mind a great many more people want stoves than case in point. In a large shop in New. England there was a bright young man working at the bench, who had just commarks apply with equal force to all other depleted his apprenticeship. He was a partments of manufacture. Good business journeyman, getting just such wages as the others, and content to work as they did. The superintendent watched him clines, even though the actual unsatisfied for awhile, and concluded from his general bearing, his industry and his thoroughness, that he had in him the stuff of which master workmen are made. One day the superintendent stepped up to his bench and said: "Do you ever expect to do any-"thing more than work at your trade at so much per day?" "No," was the answer. Did you never think that you might get up so as to take charge of men?" was the answer a second time. The idea maintenance of a dead-levelism among had never before entered the young man's head. He thought about it, however, and the competition among men unrestrained that winter, as we happened to know, his evenings were divided between drawing lessons and the night school. In working and pocket knives comprises from the cheapest hours he devoted himself not only to his work, but to learning the details of the time. There is much of justice in this trade, and to making himself a thorough workman. In this he succeeded, and it was not many years until he had risen plained of-the mechanics themselves. In from the bench and taken a position of

The man who starts in life with the de termination to make himself a thorough mechanic, not only has more chances for steady work than the man content with half knowledge, but he has incomparably better chances of becoming an employer. He makes more money, can lay aside more, and, when there is a business opening, he is better able to step in and fill it. Capital is constantly on the lookout for ples of the well known goods of this house. investment in connection with skill and thrift. The slouch or shirk who bare ly acquires skill enough to pass for a journeyman when times are good, may think that he is just as well off as though he had mastered the trade, but his punish ment comes quickly when trade grows dull. He never knows the security of feeling which the good workman has, in knowing that his trade is a sure de pendence, even in times like these.

We think the considerations above presented are strong enough to influence any thinking mechanic to make self-im provement his constant thought. They certainly should be strong enough to influence the ambitious apprentice to seek the success to which he looks forward by the only means by which such success can certainly be attained. The world is full of disappointed men who bewail the lost opportunities of youth. They were content to let these opportunities pass unheeded, only to regret later in life, when every energy must be devoted to winning scanty support for their families, that the position very different from that to which they hoped to attain

### Hardware at the Centennial.

Main Building.

MARX BROTHERS, No. 430 Broadway, New York, exhibit in a very tasteful manner handsome specimens of Young's patent folding scissors. They show these goods in gold, silver, nickel finish and that they fold into a very small compass, and hay conveyers, patent cotton ties, &c. can be carried conveniently in the pocket without injury to clothing, the points being completely protected when folded. Each scissors is provided with a neat leather case.

BAILEY WRINGING MACHINE CO.. No. 99 Chambers street, New York, exhibit a good assortment of their "Defiance" metallic planes, box scrapers and spoke shaves. They entirely of first quality cast steel. They are a good commercial finish, in the following varieties: Block planes, smooth planes, jack, fore and durability, there is nothing equal to them and jointer planes. They also show a circular in the market. They are particularly adapted plane, with adjustment, having a flexible steel face, which admits of its ready adjustment to finished black, as may be wanted." any desired circle, either concave or convex They claim for this tool that the adjustment is stronger, works slower, and with less "back- knife grinders, a useful invention for sharpenlash," than any other tool of its kind in the market. This company manufacture their own plane irons from best quality steel made expressly for this purpose. Each iron is turned out in perfect working order and is fully warranted. The assortment of metal frame spoke shaves is large, and these are shown with both straight and raised handles.

MANNING, BOWMAN & CO.,

West Meriden, Conn., have on exhibition large assortment of planished tin, copper and Britannia metal bollow-ware, comprising a variety of nickel-plated and block tin urns, copper urns, Britannia metal water pitchers, hotel urns, tea and coffee-pots in Britannia metal and the temper out, as a grindstone, emery wheel, planished tin, swinging kettles, castors, molasses pitchers, nickel-plated hotel sets, butter dishes, &c.

KEYSTONE HARDWARE MFG. CO., Reading, Pa., display a large line of cast and malleable iron hardware, among which we notice axle or frame pulleys, screw pulleys, barrel bolts, Japanned and lacquered hat and coat hooks, ornamental brackets, a very fine assort ment of imitation bronze window fasteners, drawer pulls and shutter lifts, ornamental spring bolts, flush bolts, brass hat and coat oks, door handles, &c. In real bronze hardware they also exhibit good patterns of sunk and knob and slide flush bolts, door knobs, bell pulls, drop handles, barrel and chain bolts, window fasteners, hat and coat hooks, store door handles, escutcheons, finger plates, letter box plates, &c. They also exhibit their Centennial apple parer, and a sausage stuffer and lard press.

HARRISON & KELLOGG,

Troy, N. Y., show excellent specimens of malleable iron castings, and a handsome line of well made screw wrenches, both black and bright finish.

THE NEW YORK KNIFE CO., Walden, N. Y., make one of the handsomest exhibits of pocket knives, as well as showing the largest assortment of these goods to be shown without any attempt at elaborate display, but it is impossible to look at the immense variety without feeling something akin to astonishment at the wonderful detail the manufacture of these goods in all the various styles required by the trade in different sections of the country demands. Their display of pen one blade cocoa and brass handled knives to the finest productions in shell, pearl and ivory, with one, two, three, four and six blades that are known to the trade. They also show handsome combination knives, a fine assortment of Great Britain and the Continent of Europe. pruning and budding knives, farmers' knives, &c., and an assortment of table knives in common and medium grades.

E. H. BARNEY.

successor to Barney & Berry, Springfield, Mass., exhibits in a very elegant case a handsome as sortment of Barney & Berry's celebrated club, all clamp and rink skates. These goods are shown in all the various styles, blued, silver, gold and nickel-plated, and with plain and chased runners. Beautiful as these goods appear, and they will bear the most critical examination, we think they are fair and honest sam

Agricultural Hall. AUBURN MANUFACTURING CO.

At the intersection of center transept and aisle N, in Agricultural Hall, the Auburn Manufacturing Co., of Auburn, N. Y., make one of the most attractive exhibits of their splendid line of hand tools for farm and garden purooses that we have ever seen. Upon a large circular platform they have erected an arched structure of elegant design, surmounted with sample boards showing their tools from every point of view. Among the goods we noticed a fine assortment of steel manure forks; hay and straw forks, both round and oval; spading forks, barley and coke forks, and forks fo special purposes; potato hooks, garden rakes, both steel and malleable, &c. They also show a fine assortment of field, socket and shank hoes; handled planters' hoes, weeding hoes for garden and farm use, square eye planters They also exhibit a very large variety of edge goods, such as grain and grass scythes, bush or bramble scythes, Western corn knives, hay and straw knives and grass books. In wood goods they exhibit grain cradles, Lamson's patent scythe snaths, hand rakes and forks. hoe and rake handles. This display is the largest of its kind in Agricultural Hall, and from in life they have made for themselves is its prominent position and the excellent manner in which the goods are shown commands much attention and deserved admiration. In order that visitors may see the goods exactly as they are turned out from the factory, a bundle of each of the specimens shown on the sample boards is also on exhibition, and as nearly 300 different kinds of goods are shown, these make around the platform of their structure quite a wall of glistening steel. A. J. NELLIS & CO.,

Pittsburgh, Pa., show a large assortment of agricultural steels; Nellis' original harpoon bright steel. These scissors are so constructed horse hay fork, grapple and pulleys, patent T. ROWLAND'S SONS,

No. 13 North Fifth street, Philadelphia, show samples of polished and plain shovels, spades and scoops, draining spades, &c. The bright shovels on exhibition are very highly finished. The manufacturers say of their goods "These are a plain back shovel, being made show these planes, which are all presented in light, stiff shovel, being far superior to the old style plain back shovels, and, as for strength in the market. They are particularly adapted to railroad work. These shovels are polished or

H. FISHER,

Canton, Ohio, exhibits patent prairie mower

ing harvester knives, paper cutters, planing machine knives and other edge tools that are difficult to grind on a revolving stone. The apparatus consists of one malleable ironstone holder with wood handles and brass mounting. one sharp cutting stone and two malleable iron vises to hold the sickle. The manufacturer say of this invention, which has been awarded first premiums at Cleveland, Cincinnati and Pittsburgh Expositions: "This labor saving implement, weighing but five pounds, can be taken to the field. No water required, as the apparatus being given a vibrating movement like a file will not heat the section and take or any other revolving body would do, when used dry; it will not glaze. Any boy capable of driving a team can sharpen a mower knife alone, in one-half the time required by two men to do the same work with a grindstone The labor being light, the farmer will keep sharper knives, and thus save many trips to the machine shop to have knife heels and pitmans renaired, boxes Babbitted, &c. With this apparatus the mower sections can be ground back to the angle, which cannot be done by the old process." Mr. Fisher also exhibits his sickle edge hay knife or saw, which is a heavy cast roll pans, &c. steel blade 22 inches long, 5 inches wide nea the handle and tapering to the point. The cut ting edge is serrated the whole length of the blade similar to a reaper section. It is claimed for this knife that it will cut loose or packed hay, straw or fodder faster and with less labor than any other hay knife in the market; he also exhibits Fisher's new farm bell and Fisher's new farm bell telegraph chart, knife ections for mowers and reapers and melting ladles.

WITHINGTON, COOLEY & CO.

Jackson, Michigan, show a large and handsome assortment of garden and farming tools, embracing socket and solid shank cast steel field hoes, a great variety of garden weeding hoes, cast steel and malleable fron garden rakes, hay and manure forks in a great variety of sizes found in the Exhibition. Their goods are and styles adapted to home and foreign markets; also spading, mining and other forks for special purposes, cast steel potato and manure hooks, scythe snaths, grain cradies, corn is modeled much after the plan of that build-knives, hay knives, etc. The goods of this ing. The bottom of the cago is elegantly finfirm stand deservedly high not only in this country but in England and on the Continent of Europe; they are elegantly finished, and will compare favorably in all respects with any similar assortments that we have seen. Alfred Field & Co., No. 93 Chambers street, New York, U. S., and New Edmund street, Birmingham, England, are sole agents for these goods for

THE AMERICAN SHOVEL COMPANY, Birmingham, Conn., exhibit an assortment of Lowman's patent shovels, socops and spades.

BROWN, HINMAN & CO.,

Columbus, Ohio, have on exhibition an elegant assortment of their garden and farming tools. In steel goods they show every variety of manure and barley forks, spading forks, hav and straw forks, potato and manure hooks, socket and shank field hoes, cotton hoes, mortar and street hoes, handled planters' hoes, garden rakes, weeding rake and hoe, &c., and a good line of malleable garden rakes. In goods they exhibit an assortment of Lamson's patent scythe snaths, grain cradles, &c., handles for forks, boes and shovels, hand hay rakes, &c. These goods are as well finished as any we have seen, and, indeed, it would be a difficult matter to decide as regards the external appearance of the grand assortment of these tools on exhibition between any of the prominent makers. They are all deserving of great praise, and we believe we are strictly within the bounds of truth when we say that no other country in the world can show such rogress and perfection in the styles and manifacture of these necessary implements, a truth that is fully attested by the foreign demand. which for years has existed for these goods, nd which steadily increases.

MYERS & ERWEIN,

Philadelphia, exhibit an assortment of hay, manure and spading forks, potato and manure hooks and forks for special purposes.

E. S. LEE & CO., Rochester, N. Y., show Waters' improved tree pruners, an implement which they have taken great pains to perfect, and which has been warded first premium at a great many State fairs in New York, Massachusetts, Michigan and Ohio, beside a special medal at the Amercan Institute Fair in 1872. These pruners are sold with poles four, six, eight and ten feet long. The manufacturers claim for this invention the following advantages: "The peculiar construction of the hook which encircles the limb, the support of the blade being upon both sides, which is very important, allowing the blade to be made very thin, thereby reducing the resistance of the wood and making an easier and smoother cut than any other device. The knife being connected by a wire ro i, the pole may be of any desired length, thus obviating the necessity of a ladder or climbing. The operator cannot fail to see that the same is a decided improvement over all other shears, or pole pruners, worked by rope or cord. The small space required for working the knive allows it to be used among close dense branches, where great difficulty is found in using the oldfashioned shears. For pruning raspberry, blackberry, and rose bushes, the thorns of which are annoying, it has proved peculiarly erviceable. For removing worms' nests and thinning out fruit it is very desirable, and can e used as a fruit picker."

THE BEARDSLEY SCYTHE CO., West Winsted, Conn., have on exhibition a handsome assortment of scythes, grass hooks, corn knives, hay knives and bush hooks.

HIRAM, HOLT & CO., East Wilton, Me., exhibit their patent "lightning" hay knives in a great many sizes.

SHEBLE & FISHER, roprietors of Fairmount Fork Works, Philadelphia, show a handsome assortment of cast steel hay, manure, spading, sluice, coke and tanners' forks, rakes, &c.

SMITH & HARPER. Philadelphia, manufacturers of garden and farming tools, make a nice display of hoes and rakes, garden forks, &c.

MAXWELL, ROWLAND & CO., Holmesburg, Philadelphia county, Pa., exhibit a fine assortment of shovels, spades and scoops, which are nearly all extra finished goods. Regarding their cast steel welded plain back shovels and spades, they say: "The blades of these are made from the best quality of cast

steel; the straps are welded to the blades. The shovels are smooth back, having a decided advantage over the cast steel back straps, no rivets being in the blade or unevenness in the strap, always working smoother than a riveted back can work. The shovels are lighter, stiffer and stronger than any back strap or steel edge shovels. These shovels are polished or fluished black, as may be wanted. GEORGE GRIFFITHS.

Philadelphia, exhibits an assortment of shovels, spades and scoops with long and D handles. galvanized coal hods and pails, Russia iron,

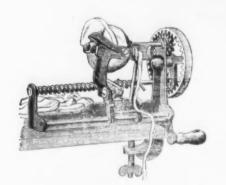
THE EAGLE COMPANY. Riverton, Conn., show an assortment of scythes, hay knives and grass hooks in good commercial fluish.

THE OSBORN MFG. CO.,

New York, make a magnificent display of bird cages in brass, gold, silver and nickel-plated wire. They also have on exhibition the handsomest aviary that we have ever seen. The dimensions of this beautiful cage are as follows: The base is 5.8 inches by 8.9 inches, and from the floor to the top of the dome which surmounts it, is about 7 feet. It is made with nickelplated pillars, both round and square, running from the base to the top of the main walls, with brass wire between the pillars, and is finished on the top with ground and cut glass about 6 inches in depth, and which extends to the line from which the roof and dome springs. The dome is after the style of the beautiful dome on Horticultural Hall, and the whole cage ished in French walnut, and the trays, of which there are quite a number, are removed in drawers provided with handsome drop handles. company only manufacture the finer class of cages, such as those described above, no Japanned goods of any kind entering into their assortment. They also exhibit a line of squirrel cages, &c. THE NEW LONDON SCYTHE CO..

New London, N. H., display a large line of well finished scythes and corn knives. [Continued on page 20.]

# Goodell Company's Machines.



# HE BAY STATE APPLE PARING AND

Pares Apples as well and as fast as any Apple Parer made excepting the Lightning Parer, and when you get the apple Pared it is also cored and sliced, all ready for drying or immediate use. The slices are cut in the very best possible shape. A bushel of apples can be easily prepared for drying in 10 to 12 minutes. We also make a MAMMOTH MACHINE! weighing 14 lbs., with babbited boxes and steel arbors for factory use, for which a large demand has already sprung up. There is less waste of fruit when worked with these machines than when done by hand, and one of these machines will do as much work as 20 persons can do by hand.

Has the neatest push-off ever invented, and is the fastest and best Apple Parer known. A bushel of apples has been pared with it in six minutes.

# The Old Reliable Turn Table Apple Parer improved so as to loosen the apple on the fork when pared.



HOG AND PIG

These Machines to

Automatic, combining

simplicity, general

utility, and great fa-

cility it their working

Weighing apparatu can be attached to the

machine and will weigh

without cost.

CHAMBERS & QUINLAN, Exclusive Manufacturers, Decatur, III.

Has proved itself to be a very valuable implement in Peach-Growing Sections, and is the only practical Peach Parer extant. It is also a first-class Apple Parer.

## THE CLIMAX CORER AND SLICER

Is the Fastest, Simplest and Cheapest Slicer made.



# HAVE BEEN TOLD

That a good Potato Parer was worth a million of dollars. We have sought for it long and at last it is found! Our orders are pressing us and we are pressing our work, and will supply the demand. So please do not hesitate, but send in your orders.

Established 1838.

Bevin Bros. Mfg.

Co.,

Easthampton, Ct.,

## WHELPLEY & STORER'S Crushers & Pulverizers. For ores, coal, cement, plas-ter, minerals, grain,

at greatly reduced prices. Pulverized pplied to the puddling and heating of Iron

LEVI R. GREENE, Trustee, 69 Kilby St., Boston, Mass.





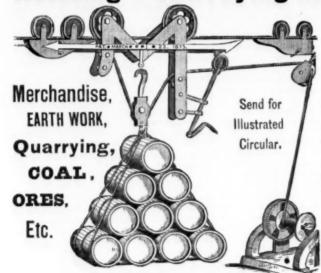
EAGLE BILL

CORN HUSKER

BUCK BROTHERS, Millbury, Mass.

### PLANE IRONS.

# Hoisting **₹** Conveying Machine



Engineers' Office,

MANHATTAN GAS LIGHT CO., New York.

We use five machines most of the time, storing man, at a cost of three cents per ton. When using three machines the cost is 1% cents per gross ton.

f Black lamond Steel Works, Pittsburgh, Pa. The Hoisting and Conveying Machine suits us; we cannot say too much in its favor.

U. S. HOISTING AND CONVEYING CO.. 115 BROADWAY, NEW YORK.



### Get Binders FOR THE IRON AGE



before the public, to our subscribers at the following very low rates-about the wholesale prices by the

(Cloth Back and Corners, with Morocco Paper Sides-a good, serviceable Binder.)

Full Cloth ...... 150 46 Half Morocco ...... 200 (Morocco Back and Corners ; Clota Sides.)

CHAS. HORNBOSTEL, 56 Broadway, Room 26, N. Y.

PERFECT COMBUSTION BY AN OXYGEN BLAST.



STANLEY RULE AND LEVEL COMPANY, Manufacturers, Factories, New Britain, Conn.

SOMETHING NEW!

# SAMSON WRENCH.



It is the only Wrench that will hold Gas or Steam Fipe, Gas Burners, Round Iron or Steel without slipping. Samples sent to the trade only.

W. J. FLANAGIN & CO., Sole Manufacturers, Office, 32 North 5th Street, PHILADELPHIA.

Reasonable Prices, Buy the following Goods:









THE COVERT ROPE HORSE TIE.



THE COVERT CATTLE TIE.





THE LEATHER HORSE TIE.



THE 1876 BREAST CHAIN.



### IF YOU WANT THE BEST The Mineral Wealth of Southwestern charging about 1500 cubic feet per second in usually low stages. This Unaka, or Iron Virginia.

BY C. R. BOYD.

Without attempting to do more than give a preliminary or skeleton report upon the geology and minerals of Southwestern Virginia at this time, I am led to hope that the great commercial importance of the 60 miles of cross-section here crudely treated of will be apparent to those who have not already rendered themselves familiar with that district. At the adjourned meeting in October next, a fuller and more omplete paper will be presented, which, it is hoped, will supply the most minute additional information that may be desired.

This 60 miles length of cross-section is located directly across what may be considered, in lieu of an exact instrumental observation, the central portion of the Appalachian chain in Southwestern Virginia, having its center near Wytheville, Wythe county, Va., on the Atlantic, Mississippi and Ohio Railroad—a main stem unning from Norfolk on the seaboard toward Memphis, St. Louis and other Western cities. A remarkably valuable parallel cross-section is situated 35 miles further E. N. E., which would have a center nearly at New River Depot on the same railroad, passing across the same geological strata as the first, with the same extraordinary mineral characteristics in the main. The map and cross-section now on exhibition in the Centennial Committee Rooms of the Mining Engineers, No. 1100 Girard street, Philadelphia, will give a very accurate general idea of the subjects of this paper.

The southwestern end of the cross-section is

located in Carroll county, Va. (which lies just south of Wythe county), near the southwestern limit of the gneissic system, marked by the eruption of a six foot vein of trap, holding particles of native copper, which, occasionally, along the 20 miles length I have examined, presents interesting features, but requires a closer and much more critical inspection than I had time to give it in order to determine an approximate idea of its commercial value, my time being consumed in that vicinity by an inspection of the more interesting pyritous lode which lies but a short distance north of it. This pyritous lode is marked by extraordinary quantities of limonite, varying between 20 and 40 feet in depth by a width of from 60 to 150 feet, in many parts holding, according to Dr. F. A. Genth, about 50 per cent. of metallic iron. It was first ascertained to be the mere outcrop or iron cap of a pyritous lode holding copper, by the precipitation of that metal on the iron and steel of the tools with which it was first mined for forge and foundry purposes, and, finally, when a few feet depth had been reached, by showing the green crystals of the carbonate of copper Under the iron cap, marked in its lower part by carbonate of copper, which varies in quantity from one point to another, suggesting the idea that the vein alternates in richer and poorer copper ores, there is, as usual in such veins, a bed of the black oxide of copper, accompanied by copper glance, the vertical thickness of which, observed at two points, is, respectively, two feet and three feet, giving, as to its best ore, 51.53 per cent. metallic copper by Dr. Genth's analysis, and 21.08 per cent. as to its poorer average. Next below are the pyrrhotite and copper pyrites, accompanied by actmolite and chlorites, and calc-spar in small quantities. The copper pyrites yield, according to the same analyst, from a strictly poor average, 1-70 per cent. of metallic copper, and 9-36 per cent. from another average, leaving no doubt of the great onomical value of the lode at a point on Chestnut Creek in Carroll county, where I had the best opportunity to examine it. Here the lode has a thickness varying between 45 and over 100 feet, inclosed in talcose and micaceous slates and schists, traceable, to my knowledge, through the county of Grayson, Va., and Ashe, Alleghany and Wautauga counties in North. Carolina, to the northeast into the county of

Floyd, Virginia, and reported further on. In the same series of rocks may be included the Ore Knob Copper Company's mine, the Peach Bottom copper mine, with its silver bearing galenite, and the Elk Knob copper lode, of Western North Carolina, as well as the bands of magnetic and specular ores, and the veins of mica, feldspar and quartz so largely developed in that part of North Carolina. These last. other veins, have been pretty fully explicated by Dr. T. S. Hunt, Prof. Kerr, Dr. Genth and others. +

Leaving the great copper lode of Carroll county, with its accompanying steatitic rocks, some ledges of which are pure enough for furnace lining, we take up our cross-section line to the N. N. W. again, through chlorite slates and kindred rocks of the Huronian period, synchronous with the Langmynd group, having a dip S. E. and S. S. E., varying between 45° and 90° from the horizon, we traverse about five miles of a repetition of these strata to where we strike the main ridge of the Unaka, or Iron Mountain range, projected northeast from Western North Carolina, Georgia and Alabama, and likely to give us those valuable measures of metallic veins by which it is characterized at other points further south, with some valuable additions as to our cross-section. At this point, we might say, or near it, the New River breaks through on its way toward the Kanawha, dis-

\*Read at the June meeting of the American Institute of Mining Engineers.

\*It will be a matter of some interest to geologists visiting that section to examine the great granite mountains in Grayson county, Va., known as Point Lookout and Buck Mountain. They have the appearance in places of an entire want of stratification, strongly suggesting the idea that they belong to a much older series of rocks than those around them. It may be determined that in the projection of the sides of these ancient rocks those planes of least resistance were found that resulted in the great fissures, during the disturbance of the earth's crust, into which have been interjected some of those metalliferous lodes which I nave attempted to describe. There is quite a similarity between the section and Corawall, agreeably with some published accounts I have read, although they do not appear to be synchronous.

charging about 1500 cubic feet per second in usually low stages. This Unaka, or Iron Mountain, along here marks the division, so far as observed, between the Huronian and Cambrian periods. In places along it, it is much disturbed, sometimes presenting the appearance of a much disturbed anticlinal, but generally having a dip to the southeast varying between 45° and higher; having a hard congiomerate near its center, and in its northwestern flank stratified velus of brown iron ores, the measured thickness of which at one point shows 6 feet and 9 feet for two of them, between head and foot walls of slate, which I place nearly about the junction of the Petsdam and calciferous sub-epochs, judging from the proximity of known rocks, for no organic remains have as yet been visible to me at the point. From these veins and others carrying manganese, immediately near, I conclude the immense beds of sedimentary ore of great purity in Wythe and Pulaski counties are derived in part. An analysis of these ores has been so frequently made, and they have been tested practically so often by a few iron men of the section, without finding any objectionable impurities, except as to ores from two or three isolated places, that I will postpone giving full analyses, and will add that the very curicus may obtain valuable information as to minor constituents by referring to Messre. Booth & Garrett, chemists, and to Prof. Fesquit, who have become very thoroughly acquainted with the iron ores of the New River region. I will say that in eight specimens taken from different points on New River, some from these mammoth beds, submitted to these gentlemen, they found an average of 53.68 per cent. of metallic iron and 0.141 per cent. of phosphorus; two of the fragments giving no phosphorus at all. Three specimens of red hematite gave an average, by those chemists, of 65.90 per cent. of metallic iron, and 0.033 per cent. of phosphorus. It should be borne in mind that these specimens were taken from points on New River and near it, all the way fro usually low stages. This Unaka, or Iron Mountain, along here marks the division, so far

Union lead mines and the Austin mines. The ores are sulphurets and carbonates of lead and zine blende and carbonates of zine, principally in a generally pure condition. This particular mine has been worked since some time previous to 1776, furnishing some of the lead used by the Continental armies, and a great part of that consumed by the Confederates cast of the Mississippi in the late war. But, after the evidently great amount of ores has been removed, no mining has been done below water level. Over 10,000 tons of the zine carbonates have been shipped North and converted into oxides, etc., since 1866. Following this great lode northeast or southwest on its course, you do not find it so well in hand as at the Wythe lead and zine mines; at points it is thrust up in separate veins. A much closer inspection at several promising points may reveal it united to such an extent on the surface as to render it profitable mining; notably, two or three points west of New River, and another near Reed Island Creek, on the lands of Grabam and McGavock, where there is evidently a junction of it with a lode of pyrites of iron, of which I shall speak presently, and another point or two in Pulaski county, following down the course of New River in that part. These remarks above are as to the surface. There is great probability that deep mining will find many of these minor veins united into one of sufficient size to be of as great commercial value as it is at the Wythe lead and zinc mines.

as great commercial value as it is at the Wythe lead and zinc mines.

Leaving the lead vein, and crossing New River on the line of our cross-section again, we pass over a marrow belt of lower limestone, through occasional beds of neutral brown hematite which line this valley for miles in each direction, we strike another belt of crystalline limestone, in which there is a lode of iron pyrites, not running in one regular line through the country, but frequently broken and thrown off a regular course, 12 feet thick at the point I could obtain the best measure of it, and decomposed almost entirely in all the hills through which it passes, leaving an extent of nearly pure limonites along entirely in all the fills through which it passes, leaving an extent of nearly pure limonites along through the county of Wythe on Cripple Creek and near the New River that I have never attempted to measure. Near this lode, just west of where our cross-section passes, are very considerable deposits of manganese oxide, without any chance as yet to obtain accurate measurements, which, by the tests of Professor

ly binoxide, crystalline in part and very dense, the thickness of which I could not obtain, as the gentleman to whom the land belongs is just now about having the necessary developments made.

ments made.

Following these strata either way you will find extraordinary surface quantities of both manganese ores and mangaulferous iron ores. At one point, four miles south of the Atlantic, Mississippi and Ohio Railroad, called the Glades, in Wythe county, a shaft has been sunk into a deposit of manganiferous iron ore of Irregular measures over 4 feet, having cavities in which bang stalactities of manganese oxide. To revert again: near to our cross section line on the Lick Mountain, and near the Potsdam sandstones that compose the heart of the mountain, is a measure of fire brick clay, which I traced in the bed of a small stream more than 100 feet diagonally scross it, not finding either

line on the Lick Mountain, and near the Potsdam sandstones that compose the heart of the mountain, is a measure of fire brick clay, which I traced in the bed of a small stream more than 100 feet diagonally seross it, not finding either wall of it; a specimen of which, with many of different ores from this region, is on exhibition with the Smithsonian Institution collection at the United States Centennial Building, as well as with the Virginia Mineral Bureau exhibit, and in a private collection of the New River Railroad Company at T54, Main Building.

In the Crippic Creek Valley, Wythe county, there is a stratum of extremely hard conglomerate, reported 15 feet thick, by many hundreds of feet in length, called corundum by those who have just begun to mine it, which I will take great pleasure in examining and reporting at a future meeting. Its only recommendation to my notice, so iar, is the fact that a gentleman of that section allowed some of it to be ground in one of his mills on a pair of stones selected for their grit. The faces of the stones were soon as smooth as possible. While the piece shown me looked well enough, I can give it no importance until it is investigated further. The northern or northwestern face of Lick Mountain, immediately facing the town of Wytheville, is a repetition in great part of the southern escarpment; only that the ores do not appear on the same gigantic scale. But it has its manganiferous iron ores, red and brown iron ores, free clay, manganese ores, and a thin stratum of slates giving traces of copper, near the northern base of the mountain. That part of our cross-section about the Atlantic, Mississippi and Ohio Railroad, transverse of if, that is either way E. N. E. and S. S. W., will prove an interesting one to the curious. Beginning 30 miles to W. S. W. in Smyth county, there are developments of barytes, the product of the mines having been for a while shipped north. Following the line of the railroad eastwardly from the barytes, we find flattering guantities on the surface n

and close survey to determine its probable value.

Going back to Wytheville, and pushing northwest across the Trenton and calciferous limestones and sandstones two molles, we come to a vein of red hematite of a magnetic character 9 feet thick, perpendicular in attitude, in limestone and filnt, showing surface indications each way half a mile, at intervals, which has been tried by the Tredegar Iron Works, of Richmond, Va. Passing on N. N. W. three and one-half miles further on our cross-section line, we go over a great fault in the crust of the earth, and suddenly find the sandstones of the sub-carboniferous and slates beneath them holding eleven seams of coal varying in thickness between 3½ feet and a few inches. These veins have a general dip S. S. E. of about 35°, the coal containing enough bitumen to make a good coke at this point, and burning well in grates and stoves. It has never been remarked that any of this coal ever decrepitates in the fire. Still, as the measures have been subjected to quite different degrees of disturbance at different points, elements may have been interjected or percolated through at some points that would cause decrepitation of those coals.

Accompanying these veins above in the order of stratification is an 18 inch vein of blackband, having its outcrop a hydrated peroxide of iron, sometimes in hollow casts and nodes. These veins, as you go eastwardly along the southeastern escarpment of Little Walkers Mountain, in which they occur, become more of an anthracite until you reach the Peak Creek Hills, and there you find the coal an anthracite as described above. Further eastwardly, in Pulaski county, it is nearly an anthracite in the southern face of Cloyd's Mountain. Following still further eastwardly into Montgomery county, crossing New River, the same veins are now mined very extensively for that section, having pretty regular measures from 4 to 7 feet in thickness and less, nearly all pure coal—still with its rather high angle of inclination, 8. S. E. value. Going back to Wytheville, and pushing north-

west of where our cross-section passes, are very considerable deposits of manganese of the was vertically without any chance as yet to obtain accurate measurements, which, by the tests of Professor Cooke, of New Jorsey, gave the following analysis: Weighed oxide of manganese, 732; and metallic manganese, 732; iron, 663.

This ore was once analyzed specially for impurities, and no appreciable quantity was a found in surface fragments. It should be to title, to the north of it, is a measure of mental found in surface fragments. It should be to title, to the north of it, is a measure of mental form of that is could not obtain for want of developments; and to the south of this there is still another view in the north falls with the stiper stone, in the relation of the provided and the surface fragments and there brown hemaittes and manganiferous from our prites lode and its surroundings, we pass N. N. W. scalin, over an interval of about two miles, on our cross-section, of linestones, in the created mental to the control of it, and a succession of ridge for more part as its and shape of a disturbed anticlinal for a part of it, and a succession of ridge for more part as its and on the control of the strength of the control of the contro

sub-carboniferous, with the lines between the hands representing the great faults; and if you will then consider that the elements have acted so much more rapidly on the soft Marcellus and Hamilton shales, upturned at a high angle, you will find an explanation for the poor wallers.

angle, you will not as explanation for the poor valleys.

This operation has been repeated across this section, or near it, four times, with the exception of a curved anticlinal in the case of the Round Mountain, in Bland county, Va., and about six times between Peak Mountain and the Mub-carboniferous measures in Tazewell county, in the southeastern edge of the Great Kanawha coal basin proper, giving us quite a succession of nearly parallel ridges. In the southeastern escarpments of the greater mountains, and doubly in the curved anticlinal of the Round Mountain, we have the ores of the Medina and the Clinton epochs, giving in the long lapse of time since they were thrown up beds of both iron and manganese ores of great value. The manganese ores are derived from two sources, a stratum of silica and manganese oxide combined, nearly about the junction of the Oneida and Medina (but the exact location I will determine by future observations), and a stratum of an oxide that underlies it. The iron ore, the red hematite usually, is a reduction from small flattened grains and petrifactions of specular red hematite in shells of the Chinton, which, in fact, at points is left out. Still, the Clinton has a large development at short intervals, always making the mountain much thicker where it occurs; not only giving a very respectable stratum of ore of the small flattened grains, but also, in places, the most beautiful petrifactions of a perfect shell (Atrypa Reticularis, apparently) in specular red hematite, as is the case on the southeastern escarpment of Peters or East River Mountain, in Giles county, Va.

In this county, Giles, on the parallel section This operation has been repeated across this

laris, apparently) in specular red hematite, as is the case on the southeastern escarpment of Peters or East River Mountain, in Giles county, Va.

In this county, Giles, on the parallel section spoken of in the beginning of this paper, there are extraordinary developments of iron and manganese ores, notably the Sinking Creek veins and deposits, which I will not fatigue you further by giving the measures and analyses of; but neither are objectionable. The red hematite ores, partially magnetic, are at Chapman's and Pack's, on New River, 8 feet thick, inclosed, as to a portion of them, by brown ores, and showing by analysis of Messre. Booth and Garrett, 64% per cent. metallic iron and 0.50 per cent. phosphorus. This vein has been traced by me at intervals for 12 miles. It shows plainly at low water, crossing New River, very clearly defined in the bottom of the atream. On the Angel's Rest Mountain and the opposite mountain across New River, are remarkable surface quantities of ores, together with very well defined deposits or veins in the sandstones, varying from a few inches to many feet, the measures of which I will be pleased to give in a future paper, as well as those of Peters Mountain.

Taking up our cross-section line again, and following it. N. N. W., over the crest of the last high mountain to a point about 25 miles in an air-line from Wytheville, and pursuing our course 10 miles further, we pass across the remarkably fertife country of Tazewell, Va., 8 miles in an air line across the Biuestone and Abbs valleys, and strike about the terminus of the Great Kanawha coal field proper, which here has a gentle dip inclicing to the N. W., the measures aggregating here about 46 feet of coal—one ven being 11 feet with one foot of slate, and another exactly four feet. But these measures are so nearly the same in character as the upper New River series, spoken of in the works of Mr. M. F. Maury, Jr., State Geologist for West Virginia, that I refer you to his admirable papers.

I have not said anything of the valuable

for West Virginia, that I refer you to his admirable papers.
I have not said anything of the valuable salt and gypsum basin, 20 miles west of our cross-section line. It is hardly necessary. Mr. Leslie, in his thorough report to the Shenandoah Valley Railroad, has pretty thoroughly explained that. I will reiterate a well known fact with regard to the gypsum, ramely, that it is 800 feet thick in the Holston Valley at one point, supposed to have resulted from water charged with sulphurous oxides taken from decomposing pyrites in the bordering rocks, coming in contact with the lime carbonates and the former radical so replacing the carbonic acid. There are other versions equally plausible.

tible.

There are ample quantities of charcoal timber there are ample quantities of charcoal timber to have had under consideration ible.

There are ample quantities of charcoal timber in the region we have had under consideration to last until far into the time when stone-coal and coke can be had from Kanawha. If furnacemen in our section, or those contemplating it as the scene of their future operations, would avail themselves of the facts as set forth in the paper of Mr. I. Lowthian Bell, lately read before this Institute, there can be no doubt, with the kindiport of maximum production of an excellent quality of gray pig can be secured at a minimum cost, allowing a very fair margin in even these times, and, too, over lines of transportation that are considered now to be costly to the shipper. Prof. Newberry says: "Charcoal may, however, be produced here in abundance for many vears, and the excellent bituminous coals of East Tennessee and West Virginia will be within easy reach. We may expect, therefore, that this will in the future become one of the most important centers of iron production in the United States." May not the same be said with equal truth of the great copper lodes, and the lead and zinc lodes? One of these I have not described, lying in Bland, with an extension into Giles county, but not having developments sufficient for measures to be taken: and still another just below the Peters or East River Mountain near New River.

Of the mineral springs for which this region

### The Iron Industries of Russia.

A correspondent of the Ironm nicates an interesting account of the present condition of the iron industries of Russia, from which we condense the following :

Owing to the constantly increasing demand in Russia for iron of every description since the rapid extension of her railways, Russia alone Is unable to supply that demand, and hence the importation of the foreign article is yearly increasing. Under these circumstances great exertions are being made in order to increase the by connecting the coal beds with the principal means of production at home. With this object, a few years ago were established "The Society for Promoting Russian Commerce and by the government, and the lines are already Industry" and "The Technical Society," who have now both several hundred members and numerous correspondents in various parts of be almost inexhaustible. Take, for instance, perfection by the government Perm Works, the empire. These associations have their the Gorobladgodat mining district: Here a periodical meetings, when, among other things, matters are discussed in connection with the all (Divine Grace) Mountain, forms one of the Important question raised by Russian protectionists of becoming independent of the foreign supply of iron in every shape, machinery, &c. It was the Technical Society who, a short time ago, called together a meeting of the principal iron-masters and machinery constructors of Russia, with a view of deciding upon the best means for promoting the iron industry in all its ing of the mine is extremely easy: the ore branches, and the resolutions carried on the found at the surface may be obtained with the conclusion of the deliberations point to a desire for high protective duties on foreign productions. The meeting was held under the be extracted with comparatively little difficulty. auspices of the Grand Duke Constantine, who acted as president on the occasion. The above societies have also established at St. Petersburg a Museum of Applied Science, and at Moscow a Polytechnic Museum, and no pains have been spared to render the same most complete, especially as regards technology in connection with the manufacture of metals

The principal iron works and mines in Russia are situated in the districts of the Ural Mountains, which extend over a distance of 1000 miles from north to south, separating European Russia from Siberia. It should be observed that many of those establishments are the result of the enterprise of the Russian government, great sacrifices having been made to sustain them. They are, therefore, called government mines or works, as the case may be, in contradistinction to the private establishments owned by private individuals or companies

There are also government establishments in the north of Russia proper, in the province of Olonets, and in the south in the province of Ekaterinoslaf. Poland contains also some government iron works. After the private works of the Ural follow the establishments in the provinces of the interior-Kalouga, Toula, Riazan, Vladimir, Kostroma, Nijegorod, Pensa and Orel; the western provinces of Vilne, Kovno, Minsk, Mohilev, Volinsk, and lastly there are a great number of private works in in the government of Ekaterinoslaf, the manufacture of iron as a private undertaking has

only just commenced. The iron trade of Russia presents a striking contrast to the other branches of manufacturing industry adopted from Western Europe. The government works may be regarded in most instances as failures, in an economical point of view, nor has private enterprise received that development which might have been expected in a country so rich in mineral Several reasons are assigned for this state of things, among which may be mentioned the high price of wood fuel, owing to the destruction of the forests in the mining districts, and the absence of adequate means of communication both in the Ural itself and with the markets of the interior. Nevertheless, at the late exhibitions held at St. Peterstury and Moscow a marked improvement was observed in some of the branches of the iron trade. But it is evident that while Russia still continues the expensive process of smelting and working iron with wood fuel it would be useless to expect any considerable increase in the production, although it would appear she has still a large supply of wood fuet in the vicinity of some of her mines. In the government of Olonets, and in Finland in particular, as was demonstrated the vicinity of St. Petersburg, where, beside at the Moscow Polytechnic Exhibition, iron rails, are manufactured rail fastenings, turnsmelting with charcoal is still a profitable business, which is increasing, and will very likely about 1,600,000 poods (25,800 tons) of rails

great impetus. The following are the returns for 1874 of the government works in the Ural, the district of is obtained chiefly from England-about 1,200,-Olonets, the western and eastern mining dis- 000 poods (19,355 tons) of wrought iron and tricts of Poland, and in the south of Russia, 700,000 poods (11,100 tons) of cast iron; beside, showing a very miscellaneous production, viz., cast iron, 202,501 tons; wrought iron, 8994 tous; steel, 1151 tons; iron castings, 118 tons; projectiles, 8203 tons; steel cannon, 146 tons; cast government of Nijnl, and in the South of Rusiron guns, 241 tons; sundry articles in iron, 1061/4 tons; armor plates, 169 tons; locomotives, 177 tons; steam vessels, 121 tons; swords and bayonets, 46,695 pieces; scythes, 20,000 pieces; rifle barrels, 5725 pieces; percussion tubes, 577,401; and miscellaneous articles of the value of £4000. The production of the private works in 1874 was approximately as follows: In the Ural, cast iron, 227,419 tons; wrought iron, 164,164 tons; steel, 1121 tons. In Central Russia, cast iron, 54,090 tons; wrought iron, 29,596 tons. South Russia, cast iron, 7062 tons; wrought iron, 7121 tons. In Poland, cast iron, 22,155 tons; wrought iron, 13,064 tons. In various other parts of the empire, cast iron, 1270 tons; wrought iron, 6194 tons; steel, 4193

The yearly production of cast iron for the whole of Russia has for a long time fluctuated between 306,500 tons and 322,600 tons, out of which is manufactured from 210,000 to 221,000

Ural Mountains. Notwithstanding that both Western and Eastern Siberia possess rich iron mines, the manufacture of iron is so little developed there that the production is insufficient to supply the demand, and considerable quantities of Ural iron are yearly exported to that part of the country.

The most decisive means for increasing the production of iron in the Ural would naturally be the introduction of mineral fuel in its man ufacture, which abounds in some parts of the Ural, and requires only to be properly worked, centers of the iron industry by a system of railways. The latter plan has been decided upon most remarkable parts of that chain of rocks, richer in interesting phenomena than any other to be found in Europe. A layer of loadstone covers its castern side, 280 feet in thickness, for an extent of a mile and a half, and appears to descend, to what depth is unknown, below the level of the surrounding plain. The worksimplest instrument, and even at a considerable depth, where the ore is more compact, it can Twenty-six thous nd tons of ore are annually obtained. The smelting is performed in five different establishments in the neighborhood. The yield of ore from 1813 to 1872 was 1,290, 322 tons.

It requires only enterprise and capital judi clously applied in order to bring about a most extensive production of coal in Russia, the deposits being abundant. The Moscow Polytechnic Exhibition showed that a beginning has already been made in that direction, although the results have as yet been comparatively unimportant. Among the establishments which have commenced the smelting of iron with mineral fuel may be mentioned the Bankof Works, in the western mining district of Poland, which produces 2260 tons of pig iron yearly, and the Lissichansk Works, in the South of Russia, in the province of Ekaterinoslaf. The latter establishment, which belongs to the government, began operations in 1866, with the view of encouraging private enterprise in the Danets coal basin in the South of Russia. Since then two private establishments have followed the example of the government-New Russia Company, in the province of Ekaterinoslaf, and Mr. Pastoukhof, in the country of the Don Cossacks, where blast furnaces have been erected, the native coal being the only fuel employed in the manufacture of For converting cast into wrought Poland and F.nland. In the south of Russia, iron, coal is used to a small extent in some of the works of the western mining district of Poland, at the government works of Kamkofsky, in the province of Viatka, and in the government establishment of Lougan, in the province of Ekaterinoslaf. Beside, coal is used for puddling at the Alexandrofsky Works of Messrs. Vsevoloj-ky, and at the Kazelsky Works of Mr. Lazaref, in the Ural. As regards the technical improvements in the manufacture of iron, Russia may be said to be just emerging from that state of stagnation which wealth as Russia, and where labor is cheap. has so long characterized it. In the various productions shown at the Moscow Polytechnic Exhibition, a marked improvement was observed, both in the quality and the mode of manufacture. Among these improvements may be mentioned the introduction in many works of Siemens' puddling furnaces. Generally speaking, iron of such large dimensions as, for instance, boiler plates, blooms weighing 139 poods (2 tons 4 cwts ), armor plates 15 inches thick, weighing 1307 poods (21 tons), were unknown at former exhibitions. The manufacture of rails, considering the great demand there is for them in Russia, is, comparatively speaking, inconsiderable; yet progress is being made in that direction also.

The largest establishment in Russia for the manufacture of rails is that of Mr. Pontilof, in tables, iron bridges, &c. The works turn out ture English coal is used, and the number of workmen employed is 2000. The raw material 400,000 poods (6000 tons) of old rails are used no from Russian lines. There are works pro ducing rais on a smaller scale in the Ural, the sia. Among the extensive producers of iron brace as many as ten separate establishments. district of the government of Nijni-Novgorod, one in the Melenkofsky district in the governdistrict of the government of Tambof. At on the boiler, allowing the steam dome to be yearly production is stated to average 50,000 value of 875,000 roubles (£131,250). The num-

company. The largest iron-master in Russia is Mr. Paul tons of wrought iron. Nearly two-thirds of the Ural, is owned entirely by him, and it is here tons of wrought iron. Nearly two-thirds of the Ural, is owned entirely by him, and it is here whole of this quantity is obtained from the that is concentrated the chief administration of the fair; pig iron will not bear the freight.

The Uralian Works only send wrought iron to be the fair; pig iron will not bear the freight.

his 13 extensive mines and works, which are other prominent exhibit. It runs with one belt, embracing an area of about 1,455,000 acres. On these estates, beside iron, are found manamounting yearly to 21,700 tons. value of the iron manufactured, together with copper and other metals, is £525,000.

gressing, especially the production of crucible steel used for the manufacture of steel cannon, being laid down. As to iron ore, the store of which latter industry is making rapid strides, magnetic ironstone in the Ural may be said to and has been brought to the highest state of secondary branch of the Ural, the Blagodait attached to the Ministry of Marine. Experiments are constantly being made as to the powder and shot. The Bessemer process has as yet been adopted only in a few establishbe said to be the first who adopted that process of manufacturing steel in Russia, and latterly his Nijetagile Works and Mr. Bernadaki at his A Siemens-Martin steel smelting furnace is also among the late additions to these works. Mr. Bernadaki also manufactures steel on the Martin system at his Somovsky Works, near Nijni-

The chief mart for the sale of iron in Russia luded in a former article. It is of immense importance to the iron trade. The Uralian Iron Volga system, necessarily find the fair of Nijnitheir productions. Beside Uralian iron, to the fair is brought iron from the works in the governments Vladimir and Nijegorod. Although that of the Ural is small, nevertheless there are The relatively small imports of iron from those works of the interior, although situated so near goods being sold chiefly at the place of producto the fair reaches from 80,000 to 129,000 tons. It is carried in small flat-bottomed open vessels. The caravans, as they are called, with articles will always command. iron, are floated down the rivers Tchoussova, Bielaya, Kama and Volga. This mode of convevance is exceedingly risky, owing to the Tchoussova not always being navigable, so that every year a score or so of barges are stranded or lost. The iron brought to the fair is sold to the wholesale dealers or into "first hands," and then to other large dealers or middlemen, who sell it to the small buyers, so that before it reaches the consumer it has increased in price to the extent of \$45 per ton. The price of wrought iron depends on a variety of causes. The high price of Russian iron in general is attributed to the unfavorable geographical position of the Uralian Works. The want of proper means of communication makes the ron industry entirely dependent upon nature. For instance, a bad harvest in the government of Perm, from whence the works draw their supply of flour, &c., often produces the most distressing consequences. The distance of the works from the inhabited localities compels the manufacturer to make a year's provision of articles of consumption for his workmen, while the prices of the same are continually fluctuating; should the prices go down in the market the manufacturer is bound to lower the price to the men, although he may have paid dearer himself. From the fair the iron is carried to the neighboring governments and to the capitals. It reaches also Riga, where it comes into competition with the foreign article; this competition, however, is rendered difficult, owing to the great distance, which increases the cost of carriage. Beside, this article goes to Kief, from which place it finds its way to Odessa, where it again comes into competition with foreign iron. The governments of the southeast of Russia do not draw their supplies of wrought iron at all from the Nijni-Novgorod fair, but are supplied direct continue to do so for some time to come, owing to the proximity of these provinces to the capital, where the iron trade has lately received a 3,5.0,000 roubles (£525,000). In the manufactory manufac Nijni-Novgorod obtain their from Laishef, in the province of Kazan, where the Siberian caravans stop a short time on their way to the Nijni-Novgorod fair. There is very little Russian iron shipped direct abroad from this

### Centennial Notes.

A. B. FARQUHAR,

Works Company (limited). These works em- Hall, includes pretty much every kind of agricultural implement of latest designs and with eight of which are situated in the Ardalof all the latest improvements. Our space will only permit a slight reference to the exhibits, and ment of Vladimii, and one in the Elotomsky gine, which is set a little to one side, and low these various mines and works iron smelting is put forward, and not coming over the crown conducted, and the manufacture of bar and sheet; while by using side bed plate, instead sheet iron, boiler plates, iron wire, etc. The of box bed plate, there is a saving of 400 lbs. of metal. The valve is set at an angle of 45°, giving poods (800 tons) of manufactured iron, of the all the advantages of valve on top of cylinder, and admits of a direct connection with eccenber of workmen employed is 3000. The ore, tric. The boiler is very large in proportion to the extent of 1,200,000 poods (19,355 tons) to the size of engine, and the feed water is yearly, is all obtained on the estates of the thoroughly heated before going into the boiler. A vertical tubular boiler is also shown, for which economy in room and price are special Demidoff. The town of Nige-Tagilsk, in the features claimed. Farquhar's separator is an-

scattered along a distance of over 75 miles, no gearing, rakes or webs, and threshes, separ ates, cleans and bags ready for market. The cylinder and concaves are made of wrought ganese, copper, lead, gold, platins, and even discovered. The chief by screws and nuts; the side plates and all parts production in fron is bar fron, boiler plates, liable to wear are fron. The shafts and pinions sheets, rails and a small quantity of steel, are steel. The boxes are genuine anti-friction The number metal and self-oiling. All Farquhar's threshing of workmen connected with Mr. Demidoff's machines have belt pulleys on both sides, and various establishments is 11,000. The yearly can be transferred from geared to belt machines, and vice versa, in ten minutes by an ordinary laborer. A special feature it: this machine is in The manufacture of steel in Russia is pro- the construction of the cylinder cover (patented), which sends the dust back with the chaff where it belongs. The separator attachment is constructed on the vibrator principle. which has been demonstrated to be the best. The vibrating parts are so supported upon and the Oboukhof Works, near St. Petersburg, swinging hangers as to give the easiest and at the same time the most efficient movement for the purpose of separating the quality of the metal by testing the guns with from the straw. The movement of the vibrating parts are so adjusted that one balance other, allowing the machine to set steady. ments. Mr. Pontilof, mentioned above, may This part of the machine, which is usually so complicated as to give much trouble, is in this machine perfectly simple. A vibrating carrier the Oboukhof Works have likewise introduced of corrugated sheet fron and three agitators the Bessemer system, as have Mr. Demidoff at operated by one shaft does the work effectually, separating all the grain from the straw Pormoff Works, in the government of Nijnl. A rice thresher similar to the above in general appearance is also shown. It is built much stronger, to sustain the greater strain, and has more space between the spikes of concave and cylinder, and less speed of cylinder to avoid cracking the kernels, but ample to thoroughly thresh out every grain from the straw, and runs is the fair at Nijni-Novgorod, to which we ai- lighter. Horse-power of various kinds are also displayed. The Farquhar patent gin power is specially deserving of careful attention. Works, being placed on rivers which enter the fact, the exhibit throughout is of great merit, but too extensive for a detailed description in Novgorod a convenient market for the sale of our columns. In addition to the above we may mention the display of plows, harrows, rakes, corn shellers, feed cutters, drills, &c., which are in great variety and attract the attention of the quantity of the same in comparison with farmers and planters from all sections of the country. Mr. Farquhar commenced manufacparcels sometimes of the value of \$450,000. turing some 13 years ago, and has built up an immense business all over this country, as well as in South America, Mexico and Europe. On to the fair of Nijni-Novgorod, is owing to the the 7th of May last he had the misfortune to be burned out, losing about \$100,000 beyond intion. The quantity of Uralian\* iron brought surance, but by indomitable energy the works are again in operation, and capable of meeting the immense demand which the merits of the

### The German Exhibit at the Centennial.

Professor Reuleaux, of Berlin, who is one of the representatives of Germany on the jury of the Centennial Exhibition, asserts in a letter to the National Zeitung that by far the greater number of the German articles exhibited at Philadelphia are inferior to those of the same kind which have been sent from other countries. "The Germans in America," he says, "have for many years talked of what Germany would produce when she should be united and regenerated; they proudly foretold that their former fatherland would certainly surpass other nations in many respects, if not eclipse them altogether. Now that they see the very opposite bas happened, they have become our bitterest critics, though indirectly they may prove to be our friends; for they are publicly setting before Germany truths which she would no believe when they were told her by her friends

There are three principal criticisms, proceeds the professor, which are made on the German department in the Exhibition; first, that the leading principle of German industry is to produce things which are cheap and bad; secondly, that most German goods are not made to be beautiful in themselves, but to attract by an appeal to German patriotic feeling; and, thirdly, that German industry shows no progress whatever either in taste or in invention. He then says:

"I cannot refrain from a feeling of shame when I wander through our department of the Exhibition, and see nothing but Germanias, Borussias, Kaisers, Crown Princes, Red Princes, Bismarcks, Moltkes and Roons in porcelain, zinc, iron, terra cotta, lithographs, paintings, and embroideries. In our art products we have sustained a defeat equal to two Sedans. In the machinery department, too, seven eighths of the space seems to be taken up with Krupp's giant cannon-those killing machines, as the Americans call them, which stand like a menace among the pacific productions sent by the other nations. Is that really a true expression of Germany's 'mission?' Do we not by such demonstrations force other nations to believe that Germany is penetrated with a spirit of Chauvinism?

"As to the third objection, I hear people say 'We have found something to learn of all the York, Pa., whose display is said to be nations which are represented at the Exhibition, we may mention the English Vicksounsky Iron the largest and most varied in Agricultural except Germany; she teaches us nothing. This is hard, but it is almost quite true. cannot deny the general justice of these criticisms, and can only express a wish that many German manufacturers will come here, in order the first we will name is a six horse-power enand how much to forget."

> Proposed Pipe Line .- The Railway World says that a gigantic pipe line scheme, nominally intended to transport crude petroleum from the oil regions of Pennsylvania to Philadelphia and Baltimore is being agitated. The project contemplates the consolidation of the Pennsylvania Transportation Company with a pipe line company chartered by Maryland and several other companies, the president being Mr. Henry Harly, and the engineer in chief Gen. Herman Haupt. Baltimore is to be the first objective point, and after she is supplied successively petroleumized in the new fashion.

### BELCHER BROS. & CO. Rule Manufacturers.

Rules and Scales, Tape Measures, Joiners' Tools, achinists' Tools, Surveyors Chains, &c. Address WM. H. BELCHER, 89 Chambers St., N. Y. Price List mailed on application.

AMERICAN NATURAL OIL CO. Lubricating Oils.

West Virginia Lubricating Native Rock Oil!

Used by most of the Railroads in the United States, Canada and Europe, and by Mechanics on all kinds of Machinery. The Safest, Cheapest and Most Reliable Lubricator in the world. Obtained the High at Prize at the Paris Exposition. 29, 29, 30 and 31 Gravity.

No. 26 CEDAR STREET, NEW YORK.



Tackle Blocks Of all Description. SHIP BLOCKS, Well and Ships'

PUMPS. Patent Pressed PUMP LEATHERS. Dealer in LICNUMVITÆ WOOD.

JOSEPH THOMPSON. Factory, 36 Burling Slip, 86 South Street, NEW YORK.

### **PYROMETERS** for BLAST FURNACES.

E. BROWN'S STANDARD PORTABLE,

E. Brown's Improved Gauntlet



Edw. BROWN,

311 Walnut St., Philadelphia.

ALSO FOR SALE

### PYROMETERS

For Baker's Ovens, Boiler Flues, Galvanizing Baths, Oil Stills, Vulcanizers, Superheated Steam.

Over 300 "Gauntlett" and 100 Portable Pyrometers are now in

use at Blast Furnaces. E. Brown's Portable Blast Gauge tor the plug hole, Steam Gauges, Blast Gauges, Mercury Gauges, Recording Steam Gauges, Engine Counters, Indicators for ascertaining the Horse Power.

### REVOLUTION INDICATORS.

The Revolution Indicator is driven like governor, either from a horizontal or vertical shaft; it constantly indicates, without the use of a watch, the number of turns per minute made by a Steam Engine.

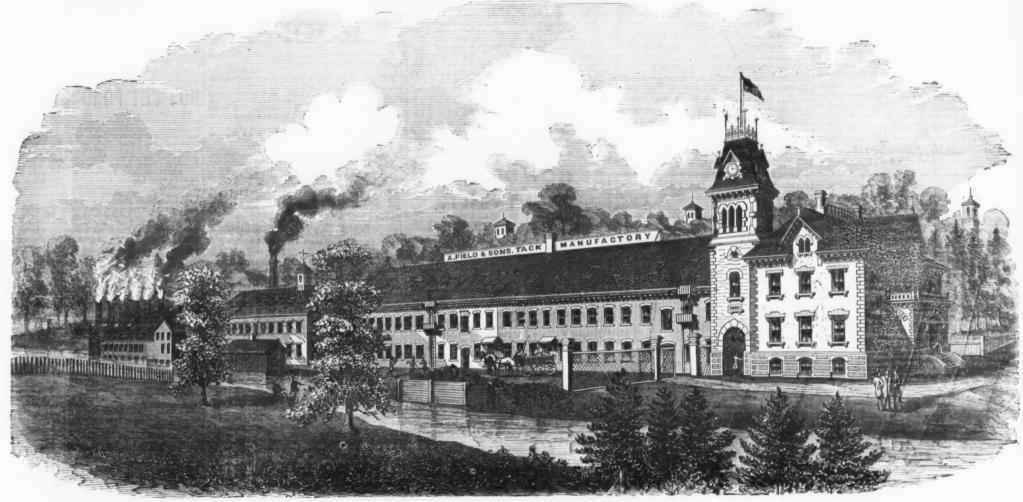
There are many engines which have to run at varying speeds for different operations, also engines controlled entirely by hand. For such, the Revolution Indicator will be found particularly useful.

Circulars on application.

### JAMES HENSHALL, Engineer, Machinist & Blacksmith. 1056 Beach St. PHILADELPHIA.

Drawings made to order. Repairing of all kieds promptly attended to. Blacksmithing executed in

ESTABLISHED .1827.



ENTIRE LENGTH OF WORKS: 700 FEET.

# A. FIELD & SONS

TAUNTON, MASS.

Manufacturers of

IRON
COPPER
TINNED
SWEDES IRON
UPHOLSTERERS'
CARD CLOTHING
PAIL AND TUB
GIMP
LACE
PATENT COPPER PLATED
LARGE HEAD CARPET

FINISHING
TRUNK
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CIGAR BOX
HUNGARIAN
HOB
SILVERED OR JAPANNED LINING
SILVERED OR JAPANNED SADDLE
TUFTING
COPPER CUT

# TACKS NAILS

BRADS AND PATENT BRADS.

LEATHERED CARPET
TINNED CARPET
COLORED COATED CARPET
COFFIN LINING
MINERS'
BRUSH
LOOKING GLASS
SHOE OR LASTING
ROUND HEAD
ROOFING
EVERY STYLE OF

BOAT REGULAR
BOAT CHISEL POINTED
FINE TWO PENNY
FINE THREE PENNY
PATENT COPPER PLATED
CHANNEL
AMERICAN IRON SHOE
SWEDES IRON SHOE
ZINC SHOE
STEEL SHOE
CHARCOAL IRON SHOE

With New, Improved, and Patented Machinery, we shall now make

# GLAZIBRS' POINTS,

ONE OF OUR SPECIALTIES.

Any variation from the regular size or shape of the above named goods made from samples to order.

QUALITY GUARANTEED TO BE SATISFACTORY.

OFFICES AND FACTORIES. - - - - TAUNTON, MASS.

Warehouse and Salesroom at 78 Chambers Street, New York.

### [Continued from page 15.] Hardware at the Centennial.

Agricultural Hall

OLIVER AMES & SONS, North Easton, Mass., exhibit a handsome case of shovels, spades and scoops, draining spades and shovels, and spades for special purposes, These goods are shown in the ordinary finish required by the trade, both black and bright and also some highly finished specimens of the same goods. They also exhibit a very respectable looking D handle shovel and D handle spade, both of which were made by Oliver Ames in 1812. The style of these goods differ but little from those in use at this day.

O. LINDEMANN & CO.,

New York, exhibit, in Agricultural Hall, a large assortment of bird eages, which are shown in a great variety of designs in brass, Japanned, patent bright metal and plated wire. Beside cages for small birds they exhibit parrot and squirrel cages, mouse cages and hanging baskets. O. Lindemann & Co. received the first medal for these goods at the Vienna Exposition in 1873.

> Machinery Hall. THE ENTERPRISE MFG. CO.

This company have their display in Machinery Hall, section F, column 56, and the trade as well as housekeepers generally find the exhibit a very interesting one, and well worthy of inspection. The firm is fairly entitled to furnaces, enpolas, forges, steam boiler fires, the title it has assumed, as without doubt it is one of the most enterprising concerns in the country. From very small beginnings, some country. From very small beginnings, some the agitation of the air, oxygen is generated ten years ago, it has steadily prozressed, until and carried with the blust to the place of comit is now a very important interest in Philadelphia. Permanent employment is given to about 200 hands, and an addition will be made as soon as they can get their premises extended, ground for which has been already secured. The shops and foundry are situated corner American and drug, spice and coffee mills, and a large variety

Dauphin streets, and are among the most complete and best arranged we ever saw. The display at the Centennial includes twenty sizes of of specialties in hardware and grocers' fittings. The drug mills are Japanned black, ornamented with gold. The coffee and spice mills are rich red, ornamented with gold, also with nickelplated hoppers and eagle dome tops. The cutters are made of hard chilled white iron, and warranted count to steel. These mills can be taken entirely apart in a few seconds by turning a single screw and lifting over the hopper, so that the cutters can easily be detached and cleaned. They can also be regulated to grind as coarse or as fine as desired by the mere turning of the regulating screw. In short, they are handsome, serviceable and cheap, varying in price from \$2 to \$100. There has, in fact, been a large reduction made in the price of these articles within the past few months, and the very best can now be purchased at about as low a figure as second and third-rate mills used to sell for. Mrs. Potts' patent cold handle double pointed smoothing irons are also manufactured by this firm, and are probably the most perfect and practicable articles of the ever invented. The handle is polished wood, detachable by a spring, never becomes hot, and does not burn the hands. They require no holder or cloth, and being lined with non-conducting fire cement, it takes less fire to heat them, while they heat quicker and retain the heat much longer. The self-weighing cheese knife is another useful and ingenious contrivance. It does away with the labor of cutting by hand knife as formerly, and dispenses entirely with the use of scales in weighing. It is very strong, Japanned in fancy colors, and easily understood. The cheese is first weighed and placed on the platform, which is revolved by a small crank. By referring to the scale or table posted on the column supporting the knife, will be found opposite the number representing the weight of the cheese the number of revolutions or fractional parts thereof the small crank has to be turned to measure off a pound. Then by turning the large crank the knife blade descends, cutting evenly, clearly and easily, and the quantity desired is cut off by a single stroke. The sausage stuffer, fruit, lard and jelly press combined is another recent ingenious invention, and one which no good housekeeper would be without after once seeing it. Among numerous other articles of special merit, we can only refer to

### Death of Charles Wardlow.

force measuring faucet, an improved bung hole

borer or hollow auger, which bores a complete

round hole, regular taper, and holds its own

chips, preventing them from entering the cask.

These are but a few of the many novelties man-

ufactured by this company, and we recommend

visitors to examine for themselves. Mr. E. B. Pike, special agent of the company, is in charge

of the exhibit, and extends every courtesy to

Mr. Charles Wardlow, of the firm of S. & C. Wardlow, well known steel manufacturers, died at his residence at Glossop rend, Sheffield, England, July 19, aged 57 years. Mr. Wardlow had street, New York, says of Mr. Hornbostel's been suffering for some time previously to his death from broachitis, and had been traveling for his health. The change, however, did him of immediate combustion. \* \* \* I find less slag no good, and he returned home. The malady soon assumed other and more dangerous forms. and he grew rapidly worse until his death. Mr. the changing of the whole tone of the air in Wardlow was a member of the Sheffield School Board, and took a very active interest in all it to all parties using a power blast.' matters pertaining to the educational interests of the town. A zealous friend of religious edneation, he viewed with extreme jealousy any attempt to abolish Bible teaching, but he was oxygenating apparatus has been attached to the elementary schools vehicles for the propagation prietors say: "The oxygen imparted to the

his life connected with the United Methodist Free Church in Surrey street, he becsme, in 1844, the founder, along with the members of that religious body, of the Surrey street Educational Institute, which, under his management, prospered exceedingly, growing from a very small beginning into a large and most useful organization for the teaching of young people. At first a Bible class, it became, in its new buildings erected in 1862 at a cost of £2200, a considerable organization for the teaching of persons between sixteen and thirty years of age, and in 1866 a day school under government nspection was added, and classes were formed in connection with the Science and Art Department. By all connected with this Institute Mr. Wardlow was most highly esteemed and beloved. He made its prosperity the work of his life, and labored incessantly to make for it the success which it has achieved. Mr. Wardlow's loss will be a serious one to the com munity in which he lived, and the enterprises, both religious and secular, with which he was onnected.

### An Oxygenated Blast for Furnaces, Forges, Cupolas, &c.

Mr. Charles Hornbostel, of No. 56 Broadvay, N. Y., has taken measures to secure letters patent upon an invention which promises to be of great and general utility in connection with the manufacture and working of iron. It consists in a process of conducting the blast of &c., through a suitably constructed chamber or vessel containing a compound from which, by bustion. By this means, which has been found perfectly practicable under working conditions, sufficient oxygen is imparted to the blast to cause perfect combustion, with a consequent increase of heat. It is claimed that all the carbon in the fuel used is converted into car bonic acid, and the resulting economy is in proportion to the completeness of the combus tion secured. It is a well known fact that con siderably more oxygen is needed to effect per fect combustion than will support a very active and rapid partial combustion. In its progress through the fire, the oxygen converts the carbon in the fuel with which it first comes in contact into carbonic acid, but in its passage through the body of coals further from the point at which the air enters, this carbonic acid is reduced to carbonic oxide by parting with a portion of its oxygen, or by taking up an extra equivalent of carbon; or else the coal does not receive oxygen enough to effect its perfect combustion, and its reduction is not carried beyond the formation of carbonic oxide and solid unconsumed particles of carbon carried off as smoke with the steam resulting from the union of oxygen with the hydrogen of the fuel.

To secure perfect combustion we may have recourse to two expedients—either to force so great a supply of air into the fire that there shall be enough oxygen secured to convert all the carbon into carbonic acid and keep it so, or increase the percentage of oxygen in the blast without appreciably increasing the volume of the blast. The former method is open to the objection that we are thereby required to heat an increased body of inert nitrogen, which accomplishes no benefit and entails a waste of heat. The latter is open to no objection except those based upon the mechanical difficulties of increasing the percentage of oxygen in the blast, and these Mr. Hornbostei has overcome in the applications of his principle thus far

Up to the present time Mr. Hornbostel has only applied his process to forges and cupolas, but in both cases with great resulting economic and benefit. In the forge fire the oxygenated blast gives an intensified heat, with freedom from sulphurous gas and smoke. The oxygen, having a strong affinity for the sulphur, combines readily with it, and, owing to the absence of this in gaseous form, a quick and reliable weld is obtained. In the cupola, beside a considerable saving of fuel, Mr. Hornbostel secures a superior quality of metal, which, when cast, is soft, tough, and possesses in some degree the characteristics of malleability, being almost entirely free from sulphur and carbon.

In application to forge fires, Mr. Horn bostel's oxygenating apparatus has been in use for more than a year in the blacksmith shops of Mesers, J. B. Brewster & Co., carriage an improved cork presser, a patent suction and builders, and Herring & Co., safe makers, of this city. The former say they consider it of great utility, and recommend it highly, as "by destroying the sulphur in the heat we get a quicker and better welding; we also save fuel by it." Messrs. Herring & Co. say: "We can give it our full indorsement. The oxygen in the blast operates toward increasing and purifying the heat to such an extent as to make it of more and better service, and it becomes a fuel and labor saving medium." The error in the use of terms, which the critical reader will be apt to notice in these statements, does not detract from the value of the commendations, based, as they are, upon practical results secured. Mr. Mosier, superintendent of the blacksmith shops of Brewster & Co.'s, of Broome process: "It produces a clear fire by dissipating all the impure gases in the coal by reason in removing or cleaning out the fires than before using it. Among its other peculiarities is the smithing room, and I cordially recommend

In applying it to cupolas Mr. Hornbostel has been equally successful. In the foundry of Messrs. E. L. Jones & Co., in this city, the equally far from wishing to make the public blast pipe leading to the cupola, and the proof sectarian dogmas. For the greater part of blast apparently increases the heat, and refines

the iron while in a fused state to a considerable extent. We find we can melt in shorter time with less coal." Messrs. Pierce & Mitchel, founders, of Brooklyn, make a like report as the result of their experience.

Mr. Hornbostel considers his invention applicable, with especial advantage, to the blast of fires under steam boilers, to pudding furnaces and to blast furnaces. We understand that arrangements have been made for its practical trial in one of the large anthracite blast furnaces on the Hudson River, when we expect to hear good accounts of it.

The expense of the apparatus employed, and of the materials used in producing "axygen, is not great, and it requires but little attention. We shall have more to say about it when it has

not great, and it requires out lit when it has We shall have more to say about it when it has been given a more general practical application than it has yet received.

### Special Notices. SECOND - HAND

MACHINERY. AT EXTREMELY LOW PRICES.

One 2000 lbs. Ferris & Miles Steam Hammer; one 1000 lbs. Ferris & Miles Steam Hammer; one Reverberatory Furnace, with Boiler attached, connected with 2000 lbs. Hawmer. Eight small Heating Furnaces for anthractic coal. Twelver cound open Hearth Forces (wrought iron). Eleven wrought iron Anvils, each weighing 200 lbs. and over. One Oliver with two Hammers. One Bement 4-Inch Boit Cutter, Crwo 2-spindle Boit Cutters, cats % in. to 1% in. boits One Die Dressing Machine. Two Double Nut Tapping Machines. One Rotary Nut Tapping Machine, 9 spindles. One single-spindle clutch Boit Cutter, cuts % in. boit to Nor Punching Machine, punches ¼ in. boits in Double Nut Tapping Machine, punches ½ in. boit cutter, cuts ¼ in. boit in. boit through 3-16 in, iron. One Punching Machine, punches 13-16 in, iron. One Punching Machine, punches 13-16 in. hole through 3-16 in, iron. One Punching Machine, punches 13-16 in. hole through ½ in. iron. One Punching Machine, punches 13-16 in. hole through ½ in. iron. One Pinching Machine, punches 13-16 in. hole through ½ in. iron. One Pinching Machine, punches 13-16 in. hole through ½ in. iron. One Pinching Machine, bed 48 ft. long, with 2 heads. One Hardway Holt Heading Machine, heads ¾ in. to ¼ in. boits. One Bit Heading Machine, heads ¼ in. to ¼ in. boits. One Bit Heading Machine, heads ¼ in. to ¼ in. boits. One Rurdeling Machine, heads ¼ in. to ¼ in. boits. One Rurdeling Machine, heads ¼ in. to ¼ in. boits. One Rurdeling Machine, heads

GEORGE PLACE, 121 Chambers & 103 Reade Streets, N. Y

### HARDWARE SALESMAN.

gentleman well acquainted with the entire rthwest rade desires an engagement. Best of sernces given.

EXPERIENCE, Office of The Iron Age. 10 Warren St., N. Y.

NOTICE.

### Water Filters.

BATTERSEA, LONDON, July 1, 1876. We beg to advise the trade and public that we have a pointed Mr. H. R. MENSING, 62 Water St., N. Y., sole sgent for the sale of our well known Silicated Carbon Water Filters.

SILICATED CARBON FILTER COMPANY.

### EXPORT TO RUSSIA!

Having established ourselves in this city for the sale of American Machinery, Hardware, Agricultural Implements and Technical Products generally, we beg to solicit correspondence with manufacturers desirous of being represented in Russia. Familiar with the want- of the country, and, as civil engineers, brought in contact with the industrial interests, we are enabled to intoduce successfully American products to the trade.

HARTOCH BROS., Kasauska 46, St. Petersburg,

### SPECIAL NOTICE.

Having established ourselves in business in this city for the sale of

AMERICAN HARDWARE, HOUSE FURNISHING GOODS, AGRICUL-TURAL IMPLEMENTS, Etc.,

we beg to solicit correspondence with parties desir one of being represented by us in Germany and sur rounding countries.

HAMMACHER & DELIUS. Hambueg, Germany, April, 1876. House in N. Y., A. Hammacher & Co., 209 Bowery.

### SPECIAL NOTICE MEN'S SINGLE GUNS,

addition to the former line of A. Simon's, Liege SILESIAN SHEET ZINC,

LOUIS WINDMULLER & ROELKER, 20 Reads Street, N. Y.

### TO INVENTORS AND MANUFACTURERS

Exhibition of the American Institute will open Sep Machinery will be received after August Mrt., other August Std. Theresand awards and a Special Gold Meda For particulars, blanks, etc., address. "General Super merican Institute, New York."

### WANTED,

a position as Rolling Mill Superintendent. Experience extending over 20 years in the States and Europe, and embracing all descriptions of rolled iron, including wire rods and wire drawing.

In a foundry and machine business, alreadablished. Locality splendid and healthy. A practical man with means is wanted practical man who is already well established.

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Specialties of Wrought, Cast, or Sheet Iron or Brass,

Made to order in a SUPERIOR MANNER, AT LOW PRICES, by the CORRUGATED METAL CO . East Berlin. Conn.

### DISCOUNT SCREW LIST.

Dayton & Lamberson. 97 Chambers St., N. Y. Offi e of Pope, Williams & Co., { CHATEAUGAY LAKE, May 1st, 1876. }

We have placed the exclusive sale of ou CHATEAUGAY STEEL IRON in the hands of Messrs. Naylor & Co., 99 John St. New York; 208 South 4th St., Philadelphia; 6 Oliver St., Boston, who will bereafter act as our agents, and to whom all orders should be addressed.
Yours, truly, POPE, WILLIAMS & CO.

### CENTENNIAL EXHIBITION.

A young man, a native of this city, with good ref-erences, having had large experience in the Hard-ware Trade, off ra his services in receiving, arrang-ing and keeping goods in order during the exhibi-tion. Terms moderate. Address.

### JOSEPH K. PARKER, 461 North 2nd Street, Philade phia.

SITUATION WANTED by an experienced Hardware man and first-class Sale-man, wholesale or rotall. Can take charge of business. Salary reasonable. No objection ro country. Good references. nable. No objection to country. Good references. Address, HARDWARE, Box 213, Appleton, Wis.

Special Notices.

### ROOFS.

Save time and money by sending for estimate for new or old buildings. Send for our 100 page Book (free if you write to-day), and learn how to stop leaks effectually and cheaply, save re-shingling, etc. Correspondence invited. 8 Cedar St., N.Y., or 49 S. Front St., Phila. Mention The Iron Age.

### JUST ISSUED.

EVERYTHING
Seeds, Implements, Machinery, and Fertilizers.
New Catalogue, 300 Illustrations, mailed on receipt 10 cent stamp.

### FARM. A. B. COHU, 197 WATER ST., N. Y

Important to Manufacturers. BISSELL, WELLES & MILLET,

Auctioneers and Commission Merchangs, No.

15 Murray 161., New York,

Solicit from Manufacturers and others consignments of Hardware and Cutlery for our weekly Auction Sales to the Trade, or at private sale for cash, as desired. Our facilities for moving large times of goods are unsurpassed. Advances made if desired.

WANTED.—A first-class business man famil-iar with machinery and manufacturing, caps-ble of handliz large bodies of me, desires a respon-sible position. References satisfactory. Address, IRON AND STEEL,

Care of P. O. Rox 813, Bridgeport, Conn.

### DROP FORGINGS.

The Trenton Vise & Tool Works, Trenton N. J., having increased their facilities, are now able to do all kinds of

Iron and Steel Drop Forgings n quantities to order at reasonable rai

HERMANN BOKER & CO , Proprietors, 101 & 103 Duane St., N. Y

S. B. LOWE,

Chattanooga, Tenn.

Dealer in METALS AND ORES. Special rates of freight to all principal points in the United States and Canadas.

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### A Light, Handsome Office.

Possession Immediately. HERMANN BOKER & CO., 101 Duane Street. N. Y.

**MANUFACTURERS** 

desirous of introducing their goods to the British and Continental Markets, are advised to insert advertisements in the newspaper "IRON," pub lished every Saturday, at 99 Cannon Street, London, E. C.

SCALE: First 3 lines, 3/; every additional line, 10d. Price, 6d. per Copy, or 30/ per annum, inclusive of poetage to the United States.

# Steel Castings.

ild and Homogeneous. Guaranteed tensile streng tous to square inch. An invaluable substitute for a silve forgings, or for Cast Iron requiring gre-ength. Send for circular and price list to CHESIER STEEL CASTINGS CO.. Evelina St., Philadelphia, Pa.

ATTENTION is invited to the fact that the Lapels used on my Goods, were entered according to Act of Congress in the year 1876, in the U. S. Patent Office. IN ADDITION to Auger Bits, I make sion Lip, Car, Machine, Dowel and Hand Rail Bits, also of Boring Machine, Carpenters' and Milwrights Augers. All my goods are solid CAST STEEL, and perfectly made by means of my Patent Machinery.

### SPECIAL NOTICE.

for making Augers and Bics, each running sevences years; cated as follows: Dec. 19, 1885; January 31, 1866, There is a special claim on each of the Dies. All persons infringing on said parents will be beld rest onsible to the extent of the law. Hussell Jennings.

DEEP RIVER, Conn., Sept. 7, 1874.

### SPECIAL NOTICE. S. CUITERMAN.

EXPORT & COMMISSION MERCHANT,

No. 2 Aldermanbury Fountain Court, LONDON, E. C. New York Office, GUITERMAN BROS., 454 Broadway. Best Attention Given to the Introduction Incompy Markets of Europe of my Wares, dierchandize, Patents, &c.

### Wanted-A Partner,

In a foundry and machine business, already well espractical man who is already well established CAR WHEEL FOUNDRY,
P. O Rox 134, Selma, Alabama

### Briesen's Patent Agency FOR SECURING INVENTIONS, TRADE

MARKS, &c., IN AMERICA AND LUROPE, No. 258 Broadway, New York.

A. V. BRIESEN. SITUATION WANTED by a young (married) man.

S Has had eight years' experience, five with a city hardware and cutlery house as traveling salesman.

A 1 reference. Address Salesman, Office of The Iron Age, 10 Warren St., N. Y.

### VENTILATING & STEAM HEATING. A thorough'y competent engineer, with extensive

experience in the above line, desires employment. Office of The Iron Age, 10 Warren St., N. Y.

WANTED situation as foreman in a mechanical calestablishment, by a man 28 years of age. Is a college graduate, has served s three years' apprenticeship at machinists' trade, and for past two years has been a sistant draughtsman in water works construction. References as to ability and character. Address. F. M. C., P. O. Box 263. Hochester, N. Y.

### DISSOLUTION OF COPARTNERSHIP

The firm of McClernan & Hymes is this day dissolved by mu ual consent. The bu-mess of the firm will be hey-idated by M. McClernan alone, No. 180 Liberty Street. NEW YORK, Jap. 20, 1876.

M. McCLERNAN,
D. HYMES.

### Special Notices.

### Wanted,

A Self-Acting Steam Hammer, Of 500 to 600 lbs. Parties having good second-hand hammers of this description please address

Box 3064, New York City.

### NOTICE! POND'S TOOLS.

The undersigned has assumed the Personal Property, including accounts, finished and unfinished Machinery, good will &c., connected with the manufacture of Machinery's Tools as conducted by Mr. Luctus W. Pond since 1847, and will continue the said business at the old stand, cor. Union and Exchange Sis., Worcester, Mass., under the mame of David W. Pond, Successor to Lucius W. Pond. CARD.—Having assumed the business mentioned above, I solicit Inquiry and Patronage, with guarantee that present standard of Workmanship, and quality of Machinery shall be maintained. A large quantity of New AND SECOND-HAND TOOLS, ALL STYLES AND SIZES, For Sale at Low Prices, Send for list of second-hand tools. Store at 98 Liberty St., New York, will be discontinued from Feb. 1, 1878, and all sales made from manufactory. Respectfully. DAVID W. POND,

Successor to Lucius W. Pond,

### WANTED TO PURCHASE, 100 tons good Second-Hand T Rails, 18 or 20 lbs. per yard.

PIPER & THOMPSON,

### A. PURVES & SON,

Scrap Iron & Metals, Machinery, Tools, Shafting & Pulleys, Steam Engines, Pumps & Boilers, Copper, Brass, Tin, Habbit Metals, Foundry Facings. Best Quality Ingot Brass.

### Cash paid for alkinds of Metals and Tools. HALL & HARBESON,

### Chemical & Physical Instruments,

191 Greenwich Street, N. V.
SPECIALTY.—BUNSEN'S GAS BURNERS, for all heatng purposes; BUNSEN'S IMPROVED GAS COMBUSTIC.N.
URNACES, with 10, 15 and 25 burners. Fine Brass and
fetal Work made to order for Metallurgists, Chemists,
xperimenters, Colleges, &c.

for Sale, &c.

### LOOK AT THIS! For Sale.

Owing to the ill health of one of the firm, we will sell the whole or one-half interest in our new and very nvenient machine shop, situated at the junction of two railroads in the beautiful village of Vineland. N. J. We have employed from 8 to 15 hands the past six months (ever since our shop was completed) on custom work, ordered in advance. It is the only machine shop in this section of the country. We will take a large portion of our pay in work, and we can furnish constant employment for several hands in manufacturing our Patent Shafting Straightener, of which we own the exclusive right. This is an opportunity seldom offered for an enterprising mechanic to establish himself in a sure and profitable ousiness, with but little cash capital. This offer will bear the closest inspection; come at once and ee it, or inquire of any of the leading citizens, or of

c. scofield & co., Vineland, N. J.

For Sale. One Corliss Engine, 14 inch cylinder, 48 inch stroke; band wheel 14 feet by 24 inch ince; cylinder and valves new, all in perfect order. One very superior Upright Drill, has feed and back grars. Two Fowler Presses. Nos. 2 and 3. One Index Milling Machine. One new Crank Planer. Two 15 inch Lathes. One Pratt & Whitney do., 13 inch swing, 4 ft. bed.

48 Beckman Street, N. Y.

### For Sale!

Owing to the death of the senior partner, the surviving partner is desirous of disposing of that part of the business of the firm comprising the Stove and Tin trade. Would dispose of the entire business, including Agricultural Luplements, Hardware, Paints, Oils, &c., if desired. Terms easy with good security.

L. PEASE & SON, Hartford, Vermont.

### For Sale.

Finest Hardware, Tin and Stove store in North-ern Ohio. For the last nine months the owner hav-ing had pror health, has concluded to offer for sale his fine Hardware Business, which w.ll inventory \$10,000 to \$12,000, or sell half interest to some live hardware man who can bring satisfactory reference. Address,

44 JOHN, 27

### FOR SALE

An & inch mill train for making Merchant, Band and Hoop Iron. Will be sold cheap. Apply to W. W. JONES,

Office of The Iron Age, 10 Warren St., N. Y.

### Near the Lehigh Valley Railroad Depot, Allentown, Pa.

For Sale, 30,000 acres of Iron Ore and Timbered Land, large water powers, furnace and forge producing best quality, at good profit and sale. Accessible to Western and Eastern markets. OWNER,

271 N. Charles St., Baltimore, Md. FOR SALE,



at 10c. a copy, Weekly Spanish Review and Prices Current. The undersigned is also a Translator from anu into the English, Spanish, French and Gernans. Latest Translations made: for the governments of Germany and Span. Pacific Mail S. S. Co., Walter A. Wood; Morris, Wheeler & Co.; Todd & Rafferty; John T. Dunkin; Fisk & Hatch; R. W. Wilde; Wilson Sewing Machine Co.; J. Hess & Co.; H. Marquardt; M. Echeverns & Co., and Chas. E. Little, New York; Hocking Valley Mig. Co.; W. F. Potts, Son & Co. Phila., Atlantic and Pacific Land Co.; B. E. Flemming, Jersey City; Wilder & Co., Savannsh, and the Tanite Co.; Stroudsburg (\* Emery Grinder"), Abendroth & Root Mig. Co., to whom he reiers.

IF Estimates furnished of translations and setting up of Spanish, German and French Catalogues for the Centennial.

C. KIRCHHOFF, Metal Reporter of " The Iron Age," Box 3091, New York P. O.

# Trade Report.

Office of The Iron Age, Wednesday Evening, August 2, 1876. The past week has been without events of much general interest in the financial markets, although Wall street has been more or less dis turbed by inside and outside influences. Money continues very abundant, and lenders are glad to get 11/2 @ 2 per cent. from borrowers on call. The discount rate on prime commercial paper is 3 @ 4 per cent.

The apprehension that Congress would pass, in the interest of the Bonanza mine owners, a bill which should make the silver dollar legal tender, with the incidental result of inflating the currency and weakening the public credit, caused gold to advance. The silver dollar proposed by the Senate Finance Committee would be worth only 881/4 cents, gold, at the present value of silver, which is less than that of the United States legal tender notes. Considering the mischief which would certainly follow the the mischlet which would certainly follow the recognition of a declining and superabundant metal as a standard of value, there is certainly reason to hope that wiser counsels will prevail, and the country be spared such retrograde legislation at a time when our national faith is pledged to resumption on a gold basis at a fixed point in the near future. The following shows the extreme daily fluctuation of the premium:

High	est. Lo
Thursday	1%
Friday 1	
Saturday	
Monday	
Tucsday	
Wednesday1	
Considering the uncertaint	ies of legisla

ation concerning silver, government bonds have been concerning silver, government bonds have been surprisingly steady, but they have been quiet and heavy. We give below the quotations at the close of business to day. State bonds were also steady and dull, but desirable railway mortgages have been strong and in good de-

The stock market has manifested considerable activity in a small way, but the tendency has been in the direction of a steady decline in prices. Anthracite coal stocks have been especially weak, as none of the mining or carrying companies can expect to make a large profit this year. The principal dealings on 'Change have been in railroad and telegraph shares.

The least bank return was fayorable, showing

nave been in railroad and telegraph shares.

The last bank return was favorable, showing that the domestic exchanges are still in favor of the city. The banks now hold in lawful money in excess of requirements, \$22,861,325, which is \$1,158,175 ahead of last week. The following are the comparative totals:

are one combaracite	C COLUMN 1		
July 22.	July 29.	Differ	rences.
Loans\$251,682,100	\$250,505,000	Dec	1,177,100
Specie 20,681,400	19,295,200		1,386,200
Legal tend's 57,198,200			2,335,200
Deposits 224,705,800	223,829,100		
Circulation. 15,257,300	15,004,200	Dec	253,100
The following table	s show the	moven	nents in
foreign trade for the	week:		

### For the week ending July 29.

1874. Total for week \$7,208,727 Prev. reported239,175,023	1875. \$5,803.769 201,110,772	1876. \$5,168,729 170,095,460
Since Jan. 1\$246,383,750  Among the imports of were articles valued as for	f general m	
Anvils	Quar	

Anviis			
Brass goods			70
Bronzes			3 16
Chains and ancl	hors		1,51
Copper			
Cattery			
Gas Fixtures			
Guna			
Hardware			
Iron, pig, tons.		1,903	39,91
Iron cotton ties			
Iron, other, ton	8		13,39
Lead, pigs			4,47
Meral goods		30	9 .22,22
Nails			53
Needles		3	5 11,30
Per. caps			
Saddlery			
Steel			
Spelter		161,900	8,77
Silverware			4 36
Tin, boxes			
Tin, 1100 slabs			
Wire			
Zinc			1,36
EXPOR	TS EXCLUSI	VE OF SPECI	E.
For the week	k ended Jul	y 31 :	
	1874.	1875.	1876.
Motel for week	#K 187 017	@4 99K 609	AR 407 00

EXPORT	rs exclus	IVE OF SPEC	IE.
For the week	ended Ju	ly 31 :	
Total for week Prev. reported	1874. \$5,157,917 170,605,103	1875. \$4,325,682 \$143,952,317	1876. \$5,427,839 \$148,743,926
	KPORTS OF	SPECIS.	\$154,171,765
For the week	ended Ju	ly 29:	
Total for the wee			235,432

Contro time in acro	
Same time in 1874	8,041,8
Same time in 1873	2.885.0
Same time in 1872	
Government bonds close as follows:	
Bid.	Aske
U. S. Currency 6s	126
U. S. 6s 1881, reg 1195	119
U. S. 6s. 1881. cou	120
U. S. 5-20 1865, reg	
U. S. 5-90 1866, cou	116
U. S. 5-20 1865. new reg	117
U. S. 5-20 1865, cou	117
U. S. 5-20 1867, reg	119
U. S. 5-90 1867, con	119
U. S. 5-20 1868, reg12136	121
U. S. 5-20 1868, COU	122
U. S. 10-40 reg	116
U. S. 10-40 cou 118%	119
U. S. 5s. 1881, reg	117
C. G. Se. 1084, 108	444

D. C. D'MO ACCOUNT TOWARD TO THE THE PARTY OF THE PARTY O	444
U. S. 5-20 1868, con	122
U. S. 10-40 reg115%	116
U. S. 10-40 cou 118%	119
FT Q & 1001 vace 117	117
U. S. 5e. 1881, reg117	111
U. S. 5s, 1881, cou117	- 117
The following were the closing qu	otation
of shares on the active list :	
Bid.	Aske
Atlantie & Pacific R. R. Preferred 2	
	2
Atlantic and Pacific Telegraph 17%	18
Chicago & Northwestern 89	39
" Pref 62%	62
Chicago, Rock Island and Pacific 107%	107
Chic., Bur. & Quincy	119
Col., Chic. & Ind. Cent 836	4
Clev., Col., Cin. and Indpls 39	40
Cleveland and Pittsburgh 94%	95
Chicago & Alton100	101
Chicago and Alton Preferred107	108
Consolidation Coal	41
	35
Canton 30	
Del. Lack. and Western 95%	95
Delaware & Hudson Canal 100%	100
Dubuque & Stoux City 65%	66
Adams Express111	112
American Express 50%	60
United States Express 67	68
Welis, Fargo & Co. Express 83%	84
Erie 131/	18
Harlem137%	138
Hannibal & St. Joseph 11%	11
" Pref 1934	21
Illinois Central	93
	8
Kansas Pacific 6%	8
Kansas & Texas 7	
Lake Shore	581

Mariposa 7%	
14 Pref 836	1
New York Central 106%	100
New Jersey Central 611/4	6
New Jersey Southern 34	
Ohio & Mississippi	1
Pacific Mail 2274	2
Panama —	13
Pittsburgh & Fort Wayne1021/	103
Pacific of Missouri 6	
Quicksilver 12	1.
" Pref 14	2
St. L., Kan. City Northern 6	1
" Pref 29%	3
Tol., Wabash & Western 2	
Union Pacific 581/2	-
Western Union Telegraph 691/2	6

### GENERAL HARDWARE.

The condition of the market is practically unchanged since our last review. The most interesting item which the opening of the nonth has developed will be found in the circulars of the screw manufacturers, printed below, showing a further advance in these goods. The American Screw Co. have adopted the plan of turning out their Screws in substantial paper boxes; their label is also improved by the substitution of larger figures than were formerly used, both of which improvements will be appreciated by the trade :

No. 9. PROVIDENCE, August 1st, 1876.

To the Hardware Trade.—Having advanced the price of our Gimlet Pointed Wood Screws, we take pleasure in quoting you the following discounts and terms:

ilecounte and telli	10 .																
FOI	HOME	1	rı	R.	4.1	DI	e.										
												A	1	m	. f	ist	
Plat Head Iron Woo	d Scret	W	ø												52	36	%
" Brass	44														52		
found Treat Tron	6.6								 *		. ,				40		
" Brass	64														40		%
PR										_	٠.				-		

Terms, cash within 30 days from date of invoice.

For export trade, special prices and terms will be given upon application.

Payments in funds at par in Boston, New York, Philadelphia or Baltimore. Solicting your orders, we remain,

Yours, very respectfully,

AMERICAN SCREW CO.

Circular No. 3. SCREWS.

We hereby annul our circular on Screws, dated June 1st, 1876, and all orders and un-filled balances are cancelled in accordance there-

Until further notice, we solicit orders for that Head Iron Screws upon the following erms: Discourt 55 and 7½ per cent. from our list; cash 30 days. No prices guaranteed.
All balances, and unfilled orders received in excess of our ability to execute from our daily production, will be cancelled without notice. RUSSELL & ERWIN MEG. CO.

New York, Aug. 1, 1876. The Massachusetts Screw Company, through their agents, J. Clark Wilson & Co., inform us that their present price for Wood Screws is discount 521/4 per cent., and they add: "No guarantee for stock on hand, and in consequence of the unstable condition of the Screw market, and the uncertainty of the manufacturers filling orders in full, we will fill orders cancel any portion of such order that we may

not have in stock." George W. Bruce, No. 1 Platt street, has issued the following:

New York, Aug. 1, 1876, Please notice the prices of Screws are slightly advanced, my present discounts being from— Flat Head Wood Screws, Iron and Brass..... 50&5 % Round Head "........40 % Nettlefold's Superior Bright Wire Goods....70&10 % Terms cash within 30 days from date of invoice. Prices subject to changes of the market without notice.

Special inducements on Nettlefold's Screws, etc., for export. Yours, respectfully,

GEO. W. BRUCE

Hermann Boker & Co., Nos. 101 and 103 Duane street, have been appointed agents for the Solid Cast Steel Adze Eye Nail Hammers, manufactured by J. D. Allison, Cromwell, Conn. They will keep in stock an assortment of these

they quote at discount 25 per cent. from the following list: ADZE EYE NAIL HAWWEDS Warranted Solid Cast Steel. Stamped, J. D. ALLISON, Warranted.

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																					1		0		11.00
			 																		0		12		9.50
																							7		7-25
					 			В	Ве	Bel	Bell	Bell	Bell F	Bell Fa	Bell Fac	Bell Face	Bell Faces	Bell Faces.	Bell Faces.	Bell Faces.	Hi L Bell Faces.	Han LB.	Ham LB	Bell Faces.  1 3 1 0 12 1 0 12 1 0 7	Hammer, per LB, 0Z,  1 4 \$ 1 0 18 0 18 0 13/6 Bell Faces. 1 3 1 0 12

dition of the Nail market, and we continue to quote 104. at \$3.10 per keg net, with a discount of 10 cents per keg, in large lots.

The Hold Back and Snap Co., Troy, N. Y. present in their sdvertisement, on page 17, illustrations of their specialties in Harness Snaps, Horse and Cattle Ties, Breast Chains, &c., to which we invite the attention of the

Among the seasonable goods worthy of attention, at this time, are the large variety of fruit preparing machines advertised and illustrated by the Goodell Company, of Antrim, N. H., on page 16.

In Foreign Hardware no changes in values are reported, and business continues in the duil and unsatisfactory condition which has prevailed for a long time. We have received the following circular, which explains itself:

From Asline Ward, Agent for George Wosten-holm & Son (Limited), Washington Works, Sheffield, Fine I XL Cutlery, Rozors, &c.

101 and 103 Duane street, } New YORK, July 31, 1876. We beg to advise that we have revised our prices (to take effect on June 26) on all pocket

send the new quotations.
Yours, respectfully,
GEO. WOSTENHOLM & SON (Limited.)
Per Asline Ward, American Director.
Fernald & Sise, No. 100 Chambers street.

invite the atention of the trade to the Reading to their catalogue, in which they illustrate a Patent Improved Apple Parer for 1876, which they quote at \$7.50 per dozen net. This Apple remodeling of the push off lever, which is now made to act directly on the apple instead of obliquely, as in last year's machine. It is a well-finished, smooth-working machine.

S. S. Putnam & Co., Neponset, Mass., have placed on the market their new Hammer Pointed Horse Nails, which they quote at the following list, which is subject to a discount of 5 per cent. for lots of 1000 lbs.:

Putnam's Hammer Pointed Horse Nails. No. 10, 23 cts. No. 9, 24 cts. No. 8, 25 cts No. 7, 26 cts. No. 6, 28 cts. No. 5, 32 cts. They have issued the following circular:

GOVERNMENT STANDARD HORSE NAILS, HAMMER POINTED.

The reputation which the "Putnam Nail" has obtained as the "Government Standard Horse Shoe Nail" of the country places at in the highest rank of machine-made nails.

The great difficulty heretofore experienced in obtaining brands of iron combining strength, toughness and freedom from flaws, we have overcome by having our iron manufactured expressly for us in Norway, which enables us to offer a Nail unsurpassed in the world.

After many years of experience, and with new and improved machinery under our own patents, we now offer to our many patrons and the public a highly finished "Hammer Pointed" Horse Shoe Nail, ready for use, which we warrant to

Shoe Nail, ready for use, which we warrant to be of uniform character in all respects, and destined to maintain the reputation we have so long held among the horse shoers of the country.

These Nails are made separately, the iron

These Nails are made separately, the iron when nearly at a welding heat being drawn out under hammers, by which means it is made firmer, tougher and more compact than by any other process.

In our process of pointing these nails no superfluous metal is removed by cutting or chipping, thus exposing the fibers or grains of the iron, and rendering them liable to split or sliver when driven into the hoof, but a most perfect weld is maintained.

silver when driven into the hoof, but a most perfect weld is maintained at the extreme point when finished, which cannot be excelled by the most expert smith upon the anvil.

As we manufacture under our own "Patents," all parties selling or using the "Putnam Hammer Pointed Horse Shoe Nail" are guaranteed against all patent liabilities.

S. B. PUTNAM & CO.

S. S. PUTNAM & Co. NEPONSET, Mass., August 1, 1876.

We are informed that the new Nail is giving such general satisfaction that the company are already behind their orders, and are making such additions to their manufacturing capacity as will enable them to double their daily production.

John Chatillon & Sons, Nos. 89, 91 and 93 Cliff street, have issued an illustrated catalogue to the extent of our stock on hand, and will and price list, showing in a very comprehensive manner their great variety of Straight and Circular Spring Balances, Counter and Union Scales, Patent Balances, Frames, Bottoms, Spiral Springs, Fenn's Faucets, Cork Stops, The book, which is printed on heavy tinted paper, covers 69 pages; it is very copiously illustrated, and is the neatest catalogue of the kind that we have seen in a long time. They say in their introduction: "Since our last illustrated price list was issued, we have added many new goods to the large line of Scales heretofore made by us, thus enabling us to present to your notice a larger and more complete line than that of any other manufacturer. We are also prepared to fill orders for Morton & Bremmer's Scales, and to make such special styles of Scales as may be required." Those in the trade who have not goods, both round pole and bell face, which received a copy of this catalogue can have it mailed to them on application.

Sidney Shepard & Co., Buffalo, N. Y., have is sued the following price list for Brook's Patent Stove Boards for the season of 1876 and 1877, which is subject to discount 35 per cent. In their advertisement, on page 31, illustrations of these goods will be found.

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14		Roun	d.					. ,	٠,		*	4													٠.				*
16	44	44											. ,													·			
13	46	6.6																											
101	66	8.6																											
2	66	44																											
4	64	6.6																											
6	6.6	6.6																											
0	66	6.6																	ì							Ĺ			
2	inch	Squar	m.			0																			0		Ī		
4	16	66	-																							Ĺ	_		•
6	66	6.6	-			1												_	-							0	0		•
8	64	6.6				1																				1	0		
õ	46	64																								Ĵ			
12	46		-			1																							
4	64	6.6	-			Ī																					^		
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0.4										* 1			*	*			*				*	•	۰	*	• •			*	*

The superiority of material and construction of these Stove Boards are now acknowledged by all. We advise customers to select by carefully measuring their stoves. The Boards should be three inches, at least, larger than the compass of the stove legs. Note.—Full cases contain 24 boards of each

SIDNEY SHEPARD & Co., Buffalo, N. Y. The Perin & Gaff Manufacturing Company, Cincinnati, Ohio, have issued a very handsomely

illustrated catalogue and price list of General Hardware, manufactured and for sale by them. This volume contains 400 large pages, handsomely printed on heavy paper. The assortprices (to take effect on June 20) on all pocket cutlery.

You are aware that for some years 7½ per cent. has been added to the "list." This we shave withdrawn, and made all prices "net." Maliory, Wheeler & Co.'s revised price list of In doing so the "list" had to be advanced, in a few instances, where the profit was exceedingly small, but the general result is a reduction averaging nearly 7½ per cent. with perpress. Introducing their catalogue, they say: ment of goods presented is large and complete, tion averaging nearly 7% per cent, with perhaps 5 per cent, on a few leaders.

We trust this careful revision of our prices may enable you to meet the times and sell our goods more freely. We do not issue price lists,

but on receipt of any list of numbers we will sion of machinery and conveniences equal to any manufacturing company or importing house. Our location at Cincinnati is central, and affords shipping facilities unsurpassed."

John C. Jewett & Sons, Buffalo, N. Y., have handsome assortment of Coal Hods and Vases and other seasonable goods. We print below the goods presented in the appendix:

Appendix "A" Appendix A.

Buffalo, N. Y.

Price List of Utility Coal Hods.

Trade Discount, 30 per cent. Helmet Parlor Coal Hod

Beautifully Ornamented with Landscapes, &c.—One Size. 17 inch.... ..... per doz. \$21.00 Plain Black Japanned Coal Hod.—Galvanized Iron Bottom. No. 2, 15 inch. Per doz. \$6°25 No. 3, 16 " "700 No. 4, 17 " "725 No. 5, 18 " "8°50 No. 6, 19 " 9°50 

Discount, 30 per cent. Jewett's Coal Vases.

Elegantly Ornamented with Fruit Pieces, Flowers, Landscapes, etc.

No. A Vase. Has Inside Reservoir. Assorted styles of Ornamenting......each, \$5 25

No. B Vase. Cashion Top. Has Inside Reservoir. Assorted Styles.......each, 4.75

No. C Vase. Stamped Cover. Has Inside Reservoir. Assorted styles of Ornamenting.....each, 4.50 

"urnished with Inside Reservoir and Patent Attach ment for holding Shovel, Tongs, &c., is of en tirely new and Handsome Design To, 10 A, Black Ground, assorted, Gold Scroll,

No. 12 A, Black Ground, assorted, Gold Colors and Pictures. each, 6:50 No. 20 B, Black Ground, assorted, Gold and Pictures. each, 6:00 No. 21 B, Black Ground, assorted, Gold Colors and Pictures. ....each, 6:00

Bruce's Patent (New York) Vase for Hard Coal.

This improved Vase will be found superior to anything hitherto before the public as a Parlor Vase to feed a grate fire or stove with Anthracite Coal, as you have only to shovel coal from the front opening, avoiding the meonvenience of lifting a heavy hod or of tipping over the old style Vase to shovel coal therefrom. Patented June 30th, 1874.

| Patent Stove Platforms. | The "Sun" Round Zinc. | Sizes—Inches... 28 | 30 | 32 | 34 | 36 |
| Per doz ... | \$1500 | 1800 | 22:00 | 24:00 | 26:00 |
| The "World" Flat Zinc. Round—Wood Bottom. |
| Sizes—Inches ... | 27 | 30 | 33 | 36 |
| Per doz ... | \$24:00 | 27:00 | 30:00 | 30:00 |
| The "Globe" Round Zinc. Wood Bottom. |
| Sizes—Inches ... | 28 | 30 | 32 | 34 | 36 |
| Per doz ... | \$24:00 | 27:00 | 30:00 | 32:00 | 31:00 |
| Discount, 33½ per cent. Patent Stove Platforms.

| Polished Steel Fire Sets. | No. 17.980 | Sets | No. 17.983 | 3.65 | 1.0 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 | 1.7.980 |

Sold only in sets of three pieces, viz.: Shovel, Tongs and Poker. The No. 17,983 are aborter than usual length, and on that account are preferred by many.

Moodle, Patent Case Applies

Mood's Patent Cage Awning. Price List.
Round, assorted sizes.....per doz. net, \$6:50 Square, "Air-Tight" Tea and Coffee Canisters.

Spun-Brass Tops, Bodies Bronzed.

(Patented).

The improvement in these Vases consists in naurfacturing them with a reservoir base to ontain water. A tube connects the upper and ower sections, through which moisture is rawn up into the earth by capillary attraction.

It is found by experience that the earth is manufacturing them with a reservoir base to contain water. A tube connects the upper and lower sections, through which moisture is drawn up into the earth by capillary attrac-

Peerless Brush Brooms. Put up in neat wood boxes of one dozen each.

Reduced Net Prices per Dozen.

No. 1, Hurl \$1.85

No. 2, " 200

No. 3, " 215

No. 1, Leather 1285

No. 2, " 300

No. 3, " 300

No. 3, " 300

Oliver Ames & Sons, North Easton, Mass. have issued, under date of July 1st, a revised price list for their Shovels, Spades and Scoops. We print below the old and new lists for those goods, the prices of which have been changed; gents for the Reading Hardware Company, found, under date of 1st instant, an appendix the balance of the list remains as before. It will be observed that with the exception of Nos. 703 and 704 Polished Scoops, which have been advanced, all the changes are reductions Parer has been improved since last year by a their price list and regular trade discounts for from former prices. The discount from the entire list is 25 per cent :

O. Ames' Cast Steel Edge Plated Shovels.

Black.

Old list. New list. Per doz. Per doz. | Price List of Utility Coal Hods. | Plain, with Bronze Bands. | No. 18, 18 | Per doz. | \$14.00 | Point Shovels, No. 2. | \$15.00 | Point Shovels, No. 3. | \$16.00 | Point Shovels, No. 4. | \$16.00 | Point Shovels, No. 58, D H'dle Back Strap Square Point Shovels, No. 59, D H'dle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 4. | \$16.00 | Point Shovels, No. 59, D H'dle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 4. | \$16.00 | \$16.50 | Point Shovels, No. 59, D H'dle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 4. | \$16.00 | \$16.50 | Point Shovels, No. 59, D H'dle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 4. | \$16.00 | \$16.50 | Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap Square Point Shovels, No. 60, D Handle, Back Strap

Polished. No. 213, D Handle, Plain Back Square

No. 223, D. Handle, Sq. Pt. Shovels, Polished, No. 3.

No. 230, D Handle, Round Pt. Shovels, Polished, No. 2.

No. 231, D Handle, Round Pt. Shovels, Polished, No. 3.

No. 232, Long Handle, Square Point Shovels, Polished, No. 3.

No. 232, Long Handle, Square Point Shovels, Polished, No. 3.

No. 234, Long Handle, Round Point Shovels, Polished, No. 3.

No. 245, Long Handle, Round Point Shovels, Polished, No. 3.

No. 246, Long Handle, Round Point Shovels, Polished, No. 3.

No. 245, Long Handle, Round Point Shovels, Polished, No. 3.

No. 246, No. 3.

No. 247, Long Handle, Found Point Shovels, Polished, No. 3.

No. 248, No. 3.

No. 249, No. 2.

No. 251, D Handle Forking Spades, Polished, No. 3.

Polished, No. 3.

Treadwell Patent Plain Back Sold Cast Steel Shot No. 261, D Handle, Sq. Pt. Shovels, Polished, No. 2.

No. 261, D Handle, Sq. Pt. Shovels, Polished, No. 2.

No. 262, D Handle, Rd. Pt. Shovels, Polished, No. 2.

No. 263, D Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 264, No. 2.

No. 265, D Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 266, D Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 267, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 268, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 269, D Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 261, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 262, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 263, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 264, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 265, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 267, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 268, Long Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 269, D Handle Rd. Pt. Shovels, Polished, No. 3.

No. 269, D Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 260, D Handle, Rd. Pt. Shovels, Polished, No. 3.

No. 278, L. H. Spades, Pol'd, No. 1.

No. 279, L. H. Spades, Pol'd, No. 1.

No. 280, No. 290, D Handle Forking Spades, Polishe

18:00 17:00

Polished
No. 289, D Handle Forking Spades,
Polished, No. 2
No. 290, D Handle Forking Spades,
Polished No. 2 18.00 No. 290, D Handle Forking Spades, Polished, No. 3. 19:00 18:00 A. C. Ray—Patent Plain Back Solid Cast Steel

It is found by experience that the earth is R. C. Blair.—Patent Plain Back Solid Cast Steel

| To is found by experience that the earth is kept moist and in good condition for a period of 10 to 15 days, without re-supplying the reservoir, or any attention whatever.
| Special attention is called to these zinc Vases, which are intended for indoor or parlor use. They are beautifully fluished in a variety of colors and tastefully ornamented.
| Prices Reduced. | Prices Reduced. | Prices Reduced. | No. 10, Hight 9¼ in., Diam. 7¼ in. ... per doz. \$13.00 | No. 13, "11¼ in.," "9½ in. ... per doz. \$12.00 | No. 31, In. | No. 31, I

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	l list	New lie Per doi	et.
Shovels, Polished, No. 8	14:50	13.5	0
No. 338, No. 2	-14.00	13.0	10
No 240 I II Spedes Pol'd No 1	14:50 14:00	19-0	0
No. 341, "No. 3. No. 342, "No. 3. Moldane" Shorele Pat Plain Rack S	14.00	13.0	
Molders' Shovels—Pat. Plain Back S Molders' Shovels.	olid C	ast Stee	el.
No 242 O Amos' D Handle Square	\$10.00	A17.00	
	\$18.00		
No. 345, A. C. Ray's D Handle, Square	17:00	16:0	
No. 346, R. C. Blair's D Handle,	16.00	15.0	
No. 347, Carters' D Handle, Square	15:00	14:0	
No. 344. Treadwell's D Handle, Square Foint Stovels, No. 2. No. 345, A. C. Ray's D Handle, Square Point Shovels, No. 2 No. 346, R. C. Blair's D Handle, Square Point Shovels, No. 2. No. 347. Carters' D Handle, Square Point Shovels, No. 2. No. 348, Jas. Adam's D Handle, Square Point, Imperfect, No. 2.	14.00	13.0	
James Adams Imperfect Polished C	ast S	10.56	
Steel Shovels and Spades		\$10.00	.
No. 573, D H'dle, Sq. Pt. Shovels, Pat., No. 574, Rd. Pt. No. 575, Long Handle, Round Point	11.00	10.00	
Shovels, Patent. No. 576, D Handle Spades, Patent. No. 577, Long Handle Spades, Patent. No. 578, D Handle, Square Point	11.00	10.00	
No. 577, Long Handle Spades, Patent. No. 578, D. Handle, Square Point	11.00	10.00	
Mr. 870 D Handle Bound Point	8.00	8.20	1
Shovels, Cast Steel. No. 580, Lorg Handle, Round Point Shovels, Cast Steel. No. 581, D flandle Spades, Cast Steel. No. 582, D H'dle, Sq. Pt. Shovels, Steel No. 583, D Handle, Round Point	9.00	8.50	
Shovels, Cast Steel	9.00	8°50 8 50	
No. 583, D H'dle, Sq. Pt. Shovels, Steel No. 583, D Haugle, Round Point	8.20	8.30	
No 594 Long Handle, Round Point	8.50	8.25	5
No. 585, D Handle Spades, Steel	8.20	8:25	
Naulor.—Iron Back Strap Shovels a	nd Sp	ades.	1
No. 637, D Handle, Square Point Shovels, Polished, No. 3.	\$8.00	\$7.75	1
No. 637, D Handle, Square Point Shovels, Polished, No. 3	9.00	8.50	1
Shovels, Polished, No. 5 Point	9.75	9.00	1
No. 640, D Handle, Square Point Shovels, Polished, No. 6	10.50	10.00	1
Shovels, Polished, No. 3	8.00	7.75	1
Shovels, Polished, No. 4	9.00	8.20	1
	8.00	7.75	1
Shovels, Diack, No. 3	7.00	6.75	1
No. 651, D. Handle, Sq. Pt. Shovels, Black, No. 4. No. 652, D. Handle, Sq. Pt. Shovels, Black, No. 5.	8.00	7.50	1
No. 652, D. Handle, Sq. Pt. Shovels, Black, No. 5. No. 653, D. Handle, Sq. Pt. Shovels,	8.75	8.00	1
No. 653, D Handle, Sq. Pt. Shovels, Black, No. 6	9.50	9.00	1
Black, No. 6 No. 658, Long Handle, Square Point Shovels, Black, No. 3 No. 659, Long Handle, Square Point	7.00	6.75	1
Shovela Black No. 4	8.00	7.50	1
No. 661, Long Handle, Round Point Shovels, Black, No. 3	7·00 8·00	6.75 7.75	1
	9.00	8.20	l
Point, No. 2	8.00	7.75	l.
Wo see Long Handle Spades Pol-	8.00	7-75	l
No. 670, D H'dle Spades, Black, No. 3.	9.00	8.50 6.75	1
No. 613, Long H ule No. 8.	8.00	7·75 6·75	li
No. 674 No. 675, D Handle Grafting Spades,	8'00	7.75	1
No. 675, D Handle Grafting Spades, Black, No. 2 No. 676, D Handle Grafting Spades,	8.00	7.25	
	0.150	W-91	1
J. Dorr.—Iron Back Strap Show	8.50 rels.	7.75	0
J. Dorr.—Iron Back Strap Show		7·75	d
J. Dorr.—Iron Back Strap Show	els.		8
J. Dorr.—Iron Back Strap Show	pela. \$7.50	\$7.25	0
No. 678, D Handle, Sq. Pt. Shovels, Polished, No. 3. No. 679, D Handle, Sq. Pt. Shovels, Polished, No. 4. No. 685, D Handle, Sq. Pt. Shovels, Polished, No. 4. No. 685, D Handle, Sq. Pt. Shovels, Black, No. 8. No. 686, D Handle, Sq. Pt. Shovels, Black, No. 4.	87.50 8.50	\$7:25 8:25	t
J. Dorr.—Iron Back Strap Shot No. 678, D Handle, Sq. Pt. Shovels, Polished, No. 3. No. 673, D Handle, Sq. Pt. Shovels, Polished, No. 4. No. 685, D Handle, Sq. Pt. Shovels, Black, No. 8. No. 686, D Handle, Sq. Pt. Shovels, Black, No. 4. No. 680, D Long, Handle, Square, Point	8.50 6.50 7.50	\$7:25 8:25 6:25 7:00	this
J. Dorr.—Iron Back Strap Shot No. 678, D Handle, Sq. Pt. Shovels, Polished, No. 3. No. 673, D Handle, Sq. Pt. Shovels, Polished, No. 4. No. 685, D Handle, Sq. Pt. Shovels, Black, No. 8. No. 686, D Handle, Sq. Pt. Shovels, Black, No. 4.	8.50 6.50 7.50	\$7:25 8:25 6:25 7:00 6:25 7:00	t h
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No. 9. French Bronze, 6 inch open Cup.  Per doz.  No. 9 G. Gilt Finish, open Cup	said
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No. 20, French Bronze, 6 inch open Cup. Per doz. 5-50	the
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Per doz. 11:00 No. 44, Verde Antique, 5 and 6 inch Cups. Per doz. 12:00 O, 45, Gil Flinish, 5 and 6 inch Cups. Per doz. 12:00 Packed 4 in a box, with screws.	and
No. 45, Gilt Finish, 5 and 6 inch Cups. Per doz. 13.00	usi
Packed 4 in a box, with screws.	tial
We remarked in our last issue that Graham &	Au
Haines were appointed agents for Kloman, Park	and
& Co., Pittsburgh, Pa. The following is a copy	in t
of the official announcement :	also
IRON CITY TOOL WORKS,  KLOMAN, PARK & CO.,  PITTEBURGH, July 20, 1876.  We beg to announce to our friends and cus-	any
Pittsburgh, July 20, 1876.)	dlin
	by
ve have appointed Messrs. Graham & Haines,	ben
of 113 Chambers street, New York, agents for	atto
omers and the hardware trade in general cases, we have appointed Messrs. Graham & Haines, if 113 Chambers street, New York, agents for be sale of our manufactures, and will carry with them a large and well assorted stock of	any
Picks, Mattocks, Hammers, Sledges and Vises.	heir
Il orders given to Messrs. Graham & Haines	dur

All orders given to Messrs. Graham & Haines for our manufactures will be filled promptly at the same rates as though they were sent to us direct. Trusting that the advantages of this arrangement will be appreciated by the trade, Yours, truly, KLOMAN, PARK & Co.

Graham & Haines, agents for George E. Dayton, manufacturer of Mann's Patent Sieves. have issued the following reduced net price list

for these goods :		
MANN'S PATENT SIEVES Net	Prices.	
Nos. 14 Iron Bottoms, per doz \$3.00 Nos. 20 Iron Bottoms, per doz \$3.50	3.00 24 3.75	3 8 4
Nos	16 3·75 24 4·50	4 8
In this connection the following		W
be of interest to many of our reade		

with the fixed determination to maintain them against all infringers. In the execution of this purpose I have just secured a second injunction against Wright & Co., restraining the further manufacture and sale of what is known as the Wright Sieve, the first having been granted and made permanent in the Western District of Missouri, after an exhaustive trial occupying two years or more, fully sustaining the radical Mann claim.

I am unwilling to needlessly inconvenience the trade, realizing how far the recent action of the administrator of the Mann estate has encouraged the patronage of the infringing manufacturer, and shall not interfere with the sale of any stock now in hands of jobbers; but I patronage of the infringing man of any stock now in hands of jobbers; but I propose to maintain my rights against all parties who shall manufacture or sell Metalle Sieves in infringement of the Mann patents in

As showing my legal advantage, I append hereto copies of the writs of injunctions thus far granted. I shall pay no attention whatever to any representation Wright & Co. may make, but ask the trade to form their own conclubut ask the trade to form their own conclusions from the facts now before them.

Very respectfully,

GEORGE E. DAYTON.

United States of America, \ Western District of Missouri. \ MONDAY, February 7, 1876.

In the Circuit Court of the United States for the Western District of Missouri, November Term, A. D. 1875.

Manetho Hilton, Admiristrator, &c., of the Estate of Robert J. Mann, deceased, vs. Charles H. Shultz and George Wright.

This cause came on for trial at this term, and was argued by Lewis L. Coburn, Esq., for the complainant, and Joel H. Tiffany and J. B. Johnson for the defendants, and upon consideration thereof it was ordered, adjudged and decided the collection of the collection.

reed as follows:
1st. That the said Robert J. Mann was the

less, one of the Masters of this Court, before hom testimony may be taken and submitted pon the question of damages due the comainant from the defendants on account of said ifringement, and that he make and submit eport thereon to this Court at a subsequen

Fin.

INITED STATES OF AMERICA,
Western District of Missouri,
I, Henry C. Geisberg, Clerk of the Circuit
Court of the United States for said District, do
ereby certify that the foregoing writing is a
rue copy of the decree and order of reference
in case (No. 317) of Manetho Hilton, adminisrator of estate of Robert J. Mann, deceased,
gainst Charles H. Shultz and George Wright,
s fully as the same remains of record in my fully as the same remains of record in my

Bec.
Witness my hand as Clerk and the seal of
id Court, this seventh day of June, 1876.
[SEAL.]
H. C. GEISBERG, Clerk.

RCUIT COURT OF THE UNITED STATES OF AMERICA Northern District of Illinois. THE UNITED STATES OF AMERICA.

George Wright and Granville Herring, and to your counselors, attorneys, solicitors, trus-tees, workmen and agents, and to each and

o George Wright and Granville Herring, and to your counselors, attorneys, solicitors, trustees, workmen and agents, and to each and every of them. Greeting:

Whereas, it hath been represented to the diges of our Circuit Court of the United tates for the Northern District of Illinois, Chancery, sitting, on the part of George E, ayton, complainant in a certain bill of comlaint, exhibited in our said Circuit Court, on a Chancery side thereof, before the judges of hid Court, against you, the said George Iright and Granville Herring, to be relieved suching the matters complained of: in which did bill it is stated, among other things, nat you are combining and confederating ith others to injure the complaint touching the matters set forth in the said bill, and that your actings and doings the premises are contrary to equity and good enscience. And it being ordered that a writting in the contraction of the particular atters in said bill set forth, do strictly committed in the said George Wright and Granlie Herring, your counselors, attorneys, solicors, trustees, workmen and agents, and each of every of you, that you do absolutely selst and refrain from making, selling or ville Herring, your counselors, attorneys, solicitors, trustees, workmen and agents, and each and every of you, that you do absolutely desist and refrain from making, selling or using metallic sieves, like the sieve, or substantially like the metallic sieve described and claimed in the Letters Patent, No. 106,597, dated August 23, 1870, and issued to Robert J. Mann, and set forth in said bill of complaint, whether in your possession or held by some other person in trust for you or to your use or benefit, and also from selling, shipping or delivering, or in any manner disposing of, or intermeddling with, any such metallic sieves, whether in your possession, or held by any person in trust for your use or benefit, or either by yourselves or your agents, attorneys or workmen, doing or performing any acts or things in violation of the exclusive rights granted to said Robert J. Mann, his heirs or assigns in and by said letters patent, during the pendency of this suit, or until this Honorable Court, in Chancery sitting, shall make other order to the contrary. Hercof fail not, under the penalty of what the law directs. To the Marshal of the Northern District of Illinois, to execute and return in due form of law.

Witness, the Hon Morrison R. Waite, Chief

Witness, the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States of America, at Chicago, in said district, this 10th day of July, in the year of our Lord one thousand eight hundred and seventy-six, and of our independence the one hundred and first year.

W. H. BRADLEY, Clerk. advertisement of Chambers & Quinlan, Decatur, Ill., manufacturers of Hog Ringers and Corn Huskers, on page 16.

The following call for a meeting of manufac turers and importers of Hardware, to be held at the Astor House, in this city, on Thursday, 3d instant, has been issued:

To the Manufacturers and Importers of Hardware, Cullery, &c., in the city of New York.—The necessity for an association of the manufacturers and importers of Hardware, Cullery, &c., has long been felt, and cannot be questioned when considering the many important purposes in promoting the general interests of the trade which it can be made to subserve.

Among the variety of objects to be obtained through the agency of such an association is the guarding against unnecessary extension of credits, the guining of reliable information as to the standing of merchants with whom we do business in all sections of the country, and the economical and thorough examination of insolvent estates in which members may have an in-

vent estates in which members may have an in-

It is a fact at once apparent, that the trade

It is a fact at once apparent, that the trade understands itself infinitely better than any party foreign to it, and that actual transactions with the general trade form a basis of information the value of which in possession of the individual firms cannot be over estimated, and is only attainable throught associate action. Trade associations for the promotion of the many interests involved are no longer an experiment, as we now have in successful operation in this city the "China, Glass and Earthenware," "The New York Jewelers," "The Furniture," and "Stationers," all of which have become established institutions, and are have become established institutions, and are fully meeting the wants and expectations of

raily meeting the wants and expectations of their respective lines. Individually we can exert but little influence to promote the general interests of our trade. As an association we can do much, not only for the purposes name?, but in many other direc-

In consideration of the facts thus briefly stated, the undersigned, with a view to the or-ganization of our trade, would respectfully so-licit your attendance at a meeting to be held for the purpose at the Astor House, on Thurs-

for the purpose at the Astor House, on Thurday, August 3, 1876, at 2 o'clock p. m.

Wallace & Sons,
Charles Parker,
Wiebush & Hilger Hardware Co.,
Norwalk Lock Co.,
Stanley Works,
Peck, Stow & Wilcox Co.,
Sargent & Co.,
Graham & Haines,
Hermann Boker & Co.,
Horace Durnie & Co., HORACE DURRIE & Co., JOHN P. MOORE'S SONS, E. REMINGTON & SONS

### BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.)

WEDNESDAY, Aug. 2, 1876. Scotch Pig .- Early in the week there was slight improvement in prices, but they have again fallen off, and are barely steady now at the decline. We quote for Gartsherrie (makers'),

Manufactured Iron .- There is no demand whatever. Our quotations are, nominally, for

though prices are notably weak. We quote Weish, £5. 5/@ £5. 15/.

Weish, £5. 5/@ £5. 15/.

IRON.

American Pig.—As regards the Iron trade it would seem that the extreme of duliness has been reached. The sales during the week have been insignificant, and the gloom is not even relieved by inquiries that might be considered as a basis for hopefulness. Although a large number of furnaces, both on the Hudson River and the Lehigh are now out of blast, the stocks of Iron don't seem to diminish, and the supply, with possibly a few exceptions of favorite brands, is fully ample for all the requirements of consumption. We hear, however, of no desire to force sales at lower figures than our quotations, and we continue to quote: No. 1 Foundry, \$22 @ \$23; No. 2 Foundry, \$20 @ \$21; Gray Forge, \$19 @ \$20.

Scotch Pig.—A sale of 100 tons Glengarnock at \$27.50 is reported. We quote:

Antimony.—A steady, moderate trade con-

garnock at \$27.50 is reported. We quote Coltness, \$30; Glengarnock, \$28 @ \$29; and Eglinton, \$27.

Rails .- In the absence of sales we quote as before, \$39 @ \$42, at mill, for Iron; and Steel, ominally, \$60 @ £63, at tidewater.

Old Rails .- Sales of 1000 tons Old Rails are reported at \$21.50. We also note in this connection the sale of 500 tons Old Car Wheels at \$20. We quote Old Rails as before: \$21.50 @ \$22.

Scrap.-We quote Wrought Scrap from dock, \$26 and from yard \$29.

### METALS.

Copper.-There is still a lack of demand for immediate requirements, limiting the sales effected for the week to 300,000 pounds Lake Superior at 19% c. @ 20c. We quote Lake at the close, nominally, 20c.; Baltimore also 20c. Nothing has transpired in futures It should be remarked, however, that there is a rather more hopeful feeling in general trade circles, including the metal branch, and that we may soon have to record more lively times in the Copper market. There are no later telegrams from London, from which we infer that there is no change. Mail accounts from that quarter came to hand to-day, dated July 22, from which we extract the following passage : "The market has been weak, and prices have again fallen all round in English, Colonial and Foreign. The firmness displayed by holders of Chili a short time since, has entirely vanished, and they are now ready enough to realize at rates considerably below those formerly ruling, several hundred tons having been disposed of at as low a rate as £70. The charters of Chili produce during the first half of July are comparatively light, being 1600 tons only, and at any ordinary period would have excited a denand and enabled holders to obtain rather better rates; but as yet they have failed to produce the slightest salutary effect. The prevailing opinion is still against prices, and it is certain We invite the attention of the trade to the that unless orders come forward larger than at present, lower rates must be conceded; but as the Indian exchange has slightly recovered. this may induce shipments to these parts, and consequently arrest any further downward tendency for a time." As we have explained on a former occasion, both the Chilean charters and the shipments to the East Indies are greatly ruled by the silver or exchange fluctuations. When silver rises, Valparaiso ships less Copper, while British India imports more Manufacured. Manufactured remains steady at 31c. for Sheathing, and 32c. for Bolts and Braziers; Bronze and Yellow Metal Sheathing, 20%c. @ 21c.; and Yellow Metal Bolts, 26c. @ 28c.

resulted in the low average of about 44 guildbeen 4314 guilders, a remarkably low price for Banca, only confirming our remarks at the time. London has, nevertheless, been sustained at £73. 10/ for Straits. Mail accounts to the 22d ultimo express themselves to the following effect: "The late rise was looked upon as a very foolish step, and the rapid fall that succeeded exposed the shallowness of the attended with mischievous consequences, and attended with mischievous consequences, and attended with mischievous consequences, and Burnt Iron, \$6 per ton; machinery, and the market and often prevents Rays, &c. —Canvas, Linen, 4%c. @ 5%c.; do. Rays, &c. —Canvas, Linen, 4%c. @ 5%c.; White, only unsettles the market, and often prevents prices rising at a time when real and legitimate grounds are substantiated. The trade should still act cautiously in ouying upon statistical matter, as the late deliveries are, to say the least, mysterious." This winding up passage, in all likelihood, is meant to allude to the 1500 tons Australia which we mentioned the other day as having been quietly shipped from London to Holland. quietly shipped from London to Holland, where or from wheace they will eventually turn up again as Tin which virtually has not ditto Ternes, \$5.871/4 @ \$6.

Lead .- It now appears that 400 tons "Selby," figure, due within five weeks from now and companies.

Rails .- There is a little better demand, al- do not seem disposed to take any further large parcels, unless a very considerable demand arises soon. Unless, therefore, holders of Lead prefer to keep what they have got, and

Antimony.—A steady, moderate trade continues to be done in this metal at 15½c. @ 16c., gold. The stock is much reduced, and when finally exhausted it will be found that it cannot be advantageously replaced, because of its high prime cost.

### IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending August 1, 1876 :

Hardware.
Budde B.
Metalware, cs., 21
Barton, Alexander & Waller,
Waller,
Make, pkgs., 1
Baldwin Bros. & Co.
Gun barrels, cs., 7
Boker Hermann & Co.
Mdse, pkgs., 2
Colby J. L. & Co.
Wire rods, bdls., 136
Degraw, Aymar & Co.
Chains, 3
Chains, cks., 3
Fuller Bros.
Mdse, cks., 2
Mdse, pkgs., 2
Folsom H. & D.
Mdse, pkgs., 8
Field Alfred & Co.
Casks, 4
Chains, cks., 38
Moore's J. P. Sons,
Arms, cs., 1
Schuyler, Pfeiffer & Co.
Cases, 1
Schuyler, Hartley & Gra-Sampson G. G.
Pig, tons, 200
Whitney A. R. & Bro.
Iron flues, t36
Order.
Spiegel, lots, 1
Iron tubes, cs., 2
Scrap, tons, 2 Steel. Steel.

Abbott J.

Tires, 19
Brown Wm.
Cases, 16
Bundles, 27
Carey & Moen,
Wire, Edis., 94
Naylor & Co.
Bundles, 418
Cases, 12
Tires, 13
Scott Thos.
Bundles, 100
Sulzbacher, Hymann,
Wolf & Co.
Bars, 111 Wolff & Co Bars, 111 Packages, 40 loodford W. O. Cases, 8 Wo Cases, 1 Schuyler, Hartley & Gra-ham,

Hardware.

Order. Cases, 19 Tires, 54 Bundles, 299 Gan rods, cs., 15 Van Wart & McCoy, Mdse. pkgs., 15
Ward Asline,
Mdse. pkgs., 11
Wiebusch & Hilger Hwd. Metals. Metals.
Cort N. L. & Co.
Tip plates, bxs., 215
Dickerson, Van Dusen &
Co.
Tin plates, bxs., 65
Darrell & Co.
Scrap lead, bbls., 6
Copper, cks., 1
Heroy & Marrenner,
Sheet tin, cs., 2
Noel, Saurel & Marneffe,
Tin, sheets, cs., 18
Phelps, Dodge & Co.
Tip plates, bxs., 11, 103
Black taggers, bxs.,
100
Antimopy, cks., 50 Co. Mdse. pkgs., 33 Guns, cs., 50 Bayonets, cs., 3 Iron

Iron.
Alexandre F. & Son,
Bars, 300
Champin H.
Cast, tons, 390
Cast, cs., 70
Fuller Dana & Fitz,
Bars, 515
Naylor & Co.
Kilos, 607
Spiegel, lots, 1
Scrap, cks., 148
Bars, 7063
Perkins, Livingstone & Co.
Scrap, lbs., 100,000; Antimony, cks., 50 Tin, slabs, 200 Tin, slabs, 200
Order.
Tin plates, bxs.. 4124
Spelter, plates, 11,957
Tin, slabs, 4238
Without Bills of Lading.
Tin, ingots, 304
Antimony, cks., 17 Scrap, lbs., 100,000; bxs., 127

### OLD METALS, PAPER STOCK, &c.

The sales of Old Metals still continue very ight, and the market is without any activity. There is a better feeling, however, in connec tion with Lead, and quotations are more easily obtained. Copper is very dull, and Composition is also in very little request. Brass is a Tin.-We mentioned in our last report that trifle more active, but not sufficiently so to alter the Netherland Trading Company's auction had prices. Stove Plate and Machinery Iron are without demand, and prices have declined. ers. The actual figure obtained proves to have The market for Rags and Paper Stock still continues dull, and quotations are growing weaker. Soft Woolens have declined 1/c. a pound. We quote the following as the current purchasing rates:

purchasing rates:

Old Metals.—Copper, 15c. @ 16c. per ib.; Yellow Metal, 10c.; Brass, 9½c.; Composition, heavy, 10c. @11c.; Lead, solid, 5½c.; Tea Lead, 5c.; Zinc, 4c.; Pewter, No. 1, 13c.; do. No. 2, 8c. @ 10c.: Spelter, 5½c., Wrought Iron, \$21 per ton; Light do., \$12 per ton; Stove Plate, \$8 per ton; Machinery, do., \$10 per ton; Barnt Iron, \$6 ner ton.

According to the programme, the price of yet passed from first hands, although it has, Coal for the present month has been for the time being, ceased to appear in the advanced 15 cents per ton. Naturelly stock anywhere. There has been a steady this has increased the demand slightjobbing demand here, but no large business is ly, and in and about this city we prereported. We quote large lines, in gold, as sume about the usual amount of Coal for follows: Straits, 17c.; English Refitted, nominthe season of the year is being taken. The ally, 171/c.; ditto Common, 171/c.; and Banca, newspapers are discussing the condition of 21c. Tin Plates .- A fair business is doing all trade and predicting the downfall of the comalong at this center, while in England also the bination, and, doubtless, to a certain extent market remains quite strong. We quote large are influencing public opinion. The foundation lots, ordinary brands, gold, per box, as follows: for the rumors circulated are doubtless to be Charcoal Bright, 87-25 @ 87-59; ditto Ternes, found in some stock broker scheme, for it \$6.75 @ \$7; Coke Tin, \$6.25 @ \$6.50, and hardly seems possible that, with the present condition of affairs, the combination can go to pieces: it is possible, it is true, but so very imto be here in September, have been sold probable that it is hardly worth while to speak to arrive at 6%c., gold; also, about 350 of it. Dealers and contractors everywhere tons various brands California at the same have laid in stocks and are indebted to the They have bought with the furthermore, a couple of hundred tons of cor-roding Lead, and of soft Missouri 300 tons; time ago, and will not be lower for the prices for these about 500 tons ranging between year. To break up the combination at the 7:10c. and 7:25c., currency. Consumers in con present time it would be necessary to slaughter sequence of the transactions here alinded to these men, because prices would drop to a very

itself be ruinous to the companies at such a as it is. In whatever way the question is regarded, it is in the very highest degree improbable that the combination will break up : it is certainly a question which it is not to consider. It is already a matter of discussion whether the price of Coal will not be raised another 15 cents next month. The opinion that it will take place has been freely expressed by gentlemen and Bars for converting into steel, made of best connected with the companies who were in a position to know whereof they speke. That this rise will be considered advisable is probable in view of the increased demand which comes at this season of the year. As compared with other seasons the state of the market is about what is to be expected at this period; there is a little increase in the demand, as people prepare for the fall and winter, but in general there is but little activity. Freights remain unchanged, though, as the volume of business increases, they will probably go up. The condition of the bituminous trade continues without any noticeable change. Below are the quotations for the month:

Cumberland, at Georget						\$3.00
West Virginia, at Balti	more.			4 50	13	6.00
Kittaning f. o. b. Baiti	more.			4.91	178	4.85
Newburg Orrel. at Despard, at Baltimore	66				CB	4:50
Despard, at Baltimore					60	4.50
Broad Top, at South An	aboy				62	4.75
Morrisdale, Wigtons					50	4.75
Cunard					620	4.75
" at Philade phia.					0	3.90
Consolidation Coal Co. !					-	-
town					8	8.65
Consolidation Coal Co.	f. o.	b., 1	Balti-		-	
more					0	3.90
In barges at New York.					0	5.50
Maryland Coal Co. f. o.	b. Ra	ltime	ore.		a	
Maryland Coal Co. f. o.	b. Ge	orge	town		a	8.75
					_	
PRICES	FOR	JULY				
	Lump.	Steamer.	Broken.	Egg.	Stove.	Chestnut.
PENNSYLVANIA COAL	co., at	We	ehaw	ken,	N.	J.
Pittston		5.00	5.10	5.30	5.8	5.10

Pittston 4.90 5.00 5.10 5.20 5.80 5.10
DELAWARE AND HUDSON CANAL CO., at Weehaw Ren, N. J.
Lackawanna 4.90 5.00 5.10 5.20 5.80 5.10
LEHIGH AND WILKES-BARRE COAL CO., f.o.b. at Port
Old Company's Summit.   5.40     5.20   5.20   5.80   5.10   Honey-Brook Lehigh   5.40     5.20   5.20   5.80   5.10
Wilkes-Barre

PHILADELPHIA AND READING COAL AND IRON CO., at Port Richmond, Philadelphia. Free Burning White Ash
Coal
Schuylkill Red Ash
Shanokin
5 05 5 55 4 65
Lorberry,
5 65 5 65 5 65 70
Lykens Valley.
6 10 6 10 6 10 5 10

DELAWARE, LACKAWANNA AND WESTERN, at Hobo ken. N. J. FREIGHTS-PER TON OF 2240 LBS

Роптя.	From Elizabethport, Por Johnson, South Amboy Hoboken & Weehawk'n	From Philadelphia,	From Baltimore.	From Georgetown.
Augusta, Me			-1122	
Albany	****	****	\$1.75	****
Amesbury, Mass Bangor, Me	\$1.00		2.00	****
Bath, Me	1.00		1.20	\$1.50
Baltimore			5555	1.11
Boston, Mass	·90 ·70	1:30	1:45	1.60
Bridgeport, Ct Bristol, R. I. Cambridgep't, Mass	-85	901	1.40	1.40
Cambridgen't Mass.	1.00			
Derby			****	
Dighton	0.000		1.40	1.50
East Cambridge	*1.00	1.25	1.40	1:40
Fall River		1.20	1.40	1.40
Hallowell, Me				
Hartford				
Hoboken	'40		1.20	1.25
Hudson	40		1.20	1.40
Jersey City Lynn, Mass	1.10	****	1 40	1 40
Middletown	.90			
Mystic				
Newark	-85		1.20 1.40	1:40
New Bedford Newburyport	1.10		1.65	1.70
New Haven	.55		1.40	1.40
New London	*80		1.40	1.40
New York	*85	70	1.00	1.80
New York	'40	70	1.25	1.90
Norwalk Norwich	.90	****	1.45	****
Pawtucket	-90			
Philadelphia			.90	1122
Portland	1.10		1.45 1.60	1.50
Portsmouth, N. H	.80	1.25	1.40	1.40
Providence Poughkeepsie, N. Y Rockland				1.40
Rockland	190			
Rockport				****
Suco	1.00	**.*	****	
Sag Harbor Salem, Mass	1.90		1.60	1.60
Salisbury Pt., Mass				
Stamford	.65			
Saybrook	·75		****	
Stonington	90			***
Troy	65		****	****
Warren, R. 1	-85			
			1.45	1.60
Weymouth Wilmington, N. C			****	1.65
Wilmington, N. U				1 40

low figure on account of the war for the trade which would at once spring up. The losses which would be entailed upon the companies from the inability of these men to pay would be severely felt. In addition to this a most exhaustive and unprofitable struggle would begin to obtain and keep the trade, which would in there is no special demand, hence prices are uptaged. Bids have been made at figures.

Out the trade. No speculative element is apparent which would to unchanged at 4½c., cash; Mule Shoes, 5½c., changed. Bids have been made at figures planted the foreign article all through the time as this with the demand so greatly reduced something below our quotations, but holders country, hence the largely increased business were firm, and no business has resulted. We in the former as compared with former years, quote: No. 1 Foundry, \$22 to \$22 50; No. 2 and it is steadily increasing. About the only ditto, \$20 to \$21; Gray Forge, \$19 to \$22; and complaint heard is that prices have been cut to Mottled, \$18 to \$19; market very quiet.

BLOOMS.-The demand and prices are unchanged as follows: Charcoal Scrap Blooms, \$47; Charcoal Ore Blooms, \$41 to \$42; Charcoal Billets of superior quality, from \$60 to \$62; Champiam Iron, \$75.

BAR IRON.-There is no life in the trade, and there are no signs of improvement in the present aspect of things. The mills are very irregularly employed, and are running only sufficient to Co., was put up at public sale last Thursday, meet the present limited demand. Under these It was started at \$155,000, and knocked down circumstances prices are weak, and only a few at \$170,000 to McIntosh, Hemphill, Zug, Keatbrands command the outside quotations, Others are sold at lower prices, in some cases panic, was estimated to be worth from \$600,000 disposition is shown to operate largely. We the price it was sold for. It will at once be put quote the market dull and weak, at 2 15c. to in repair and started up by the new owners 2.35c., according to brand.

RAILS.—Business is very quiet, and although there are some inquiries, and occasionally sales

Son, said to cost about \$300,000, was also sold

of small parcels, the aggregate amount of new at public sale the other day for \$55,000, John transactions is unimportant. In this connection we may state that one of our largest industrial establishments, connected with the railway interests, has recently reduced the number of employes by about 500 men, and the immediate outlook is far from encouraging. We continue our late quotations, with a very

Hard White Ash Coal. .. 4 55 4 65 4 75 4 85 5 45 5 4 65 87 25 to \$7 50; Coke, leaded, 14x20, \$6 87 4 to \$7.02

Red Brass, 13c.; Heavy Yellow Brass, 11c.; Light Yellow Brass, 10c.; Heavy Clean Pipe Lead, 6c. ; Junk Lead, 51/4c.; Tea Lead, Light Paper, 6c.; Tea Lead, Heavy Paper, 5c.; New Zire Clippings, 41/c.; Old Sheet Zinc, 4c.; Yellow Brass Turnings, 8c. to 10c.; Brass Turnings, 10c. to 12c.; Plumbers' Lead

And the particular time and so the first particular time. Producers, however, are hopeful of being able to obtain better raise this fail, notwithstanding the indications just now are not very favorable. Bit imminus (1920) at 1920 at 1920

such an extent that there is little or no margin for profit.

WINDOW GLASS-Continues dull, and no general improvement is looked for until the latter part of the month. No change in rates. The next regular meeting of the Western Association convenes in Chicago, if your correspondent is not mistaken, on the 26th inst.
Sale of the "Sable Iron Mill."—The Sa-

ble Iron and Nail Mill, lately owned by Zug & ing and Jack. This property, prior to the below the inside quotation, and even then no to \$700,000, and is certainly a great bargain at about the first of next month.

The large pipe foundry of William Smith & Moorhead, Pig Iron dealer, being the pur-

### BOSTON.

JULY 29.—Pig is indeed listless, the reports of the week seeming to be prolific of gossips of foundries to close until the middle of August. We continue our late quotations, with a very dull market, viz.: Steel Rails, at mills, \$57 to \$55; and Iron Rails, \$58 to \$42.

OLD RAILS.—There is no special change to note. The offerings are light, and with no demand of importance we continue our late quotations, viz.: \$22-50 to \$23, with an exceptional sale of a choice lot at \$24.

SCRAP.—Small lots are offering at lower prices, but holders of round lots are firm at full rates, although the demand is not quite so the early spring, but the movement seems to SCRAP.—Small lots are offering at lower prices, but holders of round lots are firm at full rates, although the demand is not quite so active. We quote: Cast, \$16 to \$19; Wrought, \$25 to \$25.

NALS.—The demand is still very quiet, but quotations are unchanged, viz.: \$3-25, with 25 to 325.

The Plates of large lots.

The Plates of large lots.

The Plates davance is well maintained, and with an active market. We quote in United States currency as follows: I. C., 10x14, \$8-25 to \$8-75; I. X., 10x 14, \$10 50 to \$11; Best Charcoal, leaded, 28x20, \$15 to \$15; other good brands, \$14-50 to \$15; coffer good brands, \$14-50 to \$15; coffer good fair, \$14 to \$14-50; Bright Tin, dor, and seed an experiment of the state of the contemplation of the dealers in New York and Philadelphia, who, although a little weak for the contemplation of the dealers in New York and Philadelphia, who, although a little weak for the market at the Hub. Steel continues to the market at the Hub. Steel continues at four weeks, will hardly slide down to meet the market at the Hub. Steel continues at four weeks, will hardly slide down to meet the market at the Hub. Steel continues at four weeks, will hardly slide down to meet the market at the Hub. Steel continues at four weeks, will hardly slide down to meet the market at the Hub. Steel continues at four weeks, will hardly slide down to meet the market at the Hub. Steel continues at four weeks, will hardly slide down to meet the market wacliating between 20c, and 315; confair, \$14 to \$14-50 to \$15; confair, \$15; confair, \$15; confair, \$15; confair, \$14 to \$14-50 to \$15; confair, \$15; confair,

### CINCINNATI.

CINCINNATI.

Mesers, L. R. Hull & Co., under date of July 29, write us as follows: Pig Iron.—No important changes can be reported, the market retaining the same quiet—almost monotonous—features that have for so long characterized it. We are now, however, in what is usually called the dullest mouth in the year, and it is reasonable to look for at least a somewhat improved inquiry beginning soon after August 1. The more favorable reports of the crops received are somewhat encouraging, and a better feeling is noticeable in business circles than if the damage done in certain sections by the late

29:00 @ 31:00-4 mos. 24:00 @ 26:00-4 mos. 50.00 @ 60.00-4 mos. 45.00 @ 50.00-4 mos. 75 00 @ 80 00 -4 mos.

### LOUISVILLE.

Messrs. Geo. H. Hull & Co., under date of July 31, writes us as follows: There is a better feeling in Iron, and sales are more frequent. There is not so much disposition to press sales, and several brands that have changed hands at very low prices, on account of forced sales, are now held higher, and are selling at the advance. On other brands there has been no change in price. We make a partial revision of figures, based on actual sales, as follows. The usual time, 4 mos., is allowed on the quotations below: HOT BLAST CHARCOAL.

COLD BLAST CHARCOAL Car Wheel from Hanging Rock Ores. 25:00 @ 45:00

" Tennessee Ores. 28:00 @ 30:00

" Alabama and Georgia
Ores. 28:00 @ 40:00

Car Wheel from Kentucky Ores. 28:00 @ 45:00

### CHATTANOOGA.

Mr. S. B. Lowe, under date of July 29, reports as follows: No change worthy of note has occurred since last report. Some "Guerrilla" lots of mill grades bave changed hands at low figures, but Foundry Irons are firm. The quotations are about as follows:

COKE.
No. 1 Foundry, extra.     \$21 00 @ 22 00       No. 1 Foundry     19 50 @ 20 50       No. 2 Foundry     18 00 @ 19 00       No. 1 and 2 Forge     15 00 @ 16 00       White and Mottled     14 00 @ 15 00
HOT BLAST CHARCOAL.
No. 1 Foundry, extra. \$20.00 @ 22.50 No. 1 Foundry 19.00 @ 20.00 No. 2 Foundry 17.00 @ 18.50 No. 1 and 2 Forge 16.00 @ 17.00 White and Wotfled 14.00 @ 15.00
COLD BLAST CHARCOAL.
Car Wheel Metal       \$22.50 @ 27.00         Forge Metal       17.00 @ 20.00         No. 1 Wrought Scrap       per lb., \$c. @         No. 2 Wrought Scrap       %c. @         Cast Scrap, Heavy       per ton, \$12.00 @ 14.00         Cast Scrap, Light       8.00 @ 10.00         Old Car Wheels       17.50 @         Old Kalls       21.50 @
BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel Messrs. Wyeth & Brother, Iron and Steel merchants, 46 and 48 South Charles street, report us the following prices under date of Aug. 1: Our market remains quiet, but there is a much better feeling noticeable, and the general impression seems to be that improved trade and firmer prices may be looked for during the present month. Quotation figures remain unchanged.

### AMERICAN REFINED BAR IRON

1 to 6 wide by % to 1 thick . I	
1 to 6 wide by % to 1 thick 1 2% to 2 4-10c.	g ib.
Round and square, ordinary sizes, from	
% to 2 inclusive	+4
Hoop Iron, 1% wide and upward 3% to 4c.	44
Bang Iron, from 1% to 4 in, wide 3 to 3%c.	6.6
Horse Shoe Iron % to 1 wide by % to %	
thick 31/4 to 4c.	6.6
Norway Nail Rods 7 to 71/4 c.	4.6
Black Diamond Cast Steel, Flats, Squares	
and Octagon, ordinary sizes 15 to 15%c.	84
Machinery Steel	44
Cast Spring Steeliss 5 to 3760.	66
Homogeneous Steel Plate91/2 to 10c.	4"
Perkins' Horse Shoes, per keg of 100 lbs \$4	8736
" Mule Shoes " " 5	
Common Horse Nails, from 14c. to 18c. per pound	

																	٠			æ	30	Ľ	N	W)	35.00
6-0					۰																				
No.	2.																				21	1	90	0	22.00
No.	3.												į.								20	17	10	Ca	21:00
Mott	led			,														0	,		17	.(	Ю	0	19.00
	No. No.	No. 1 No. 2 No. 3	No. 1 No. 2 No. 3.	No. 1 No. 2 No. 3.	No. 1 No. 2 No. 3	No. 1 No. 2 No. 3.	No. 1 No. 2 No. 3	No. 1 No. 2 No. 3.	No. 1 No. 2 No. 3.	No. 1	No. 1	No. 1. 233 No. 2. 213 No. 3. 203	No. 1. 23°00 No. 2. 21°00 No. 3. 21°00	No. 2 21.00 @											

future, while others have gloomy forebodings.

It is hoped, however, that the expectations of former may be realized. At the press of factors and the former may be realized. At the press of former may be realized. At the press of factors and the former may be realized. At the press of factors and the former may be realized. At the press of factors and the former may be realized. At the press of factors and the former may be realized. At the press of factors and the former may be realized. At the press of factors and the former may be realized and some of the mills, which were stopped wards.

It is hoped, however, that the expectations of former may be realized. At the press of factors and the former may be realized that the business is very generally reported dull, and some of the mills, which were stopped wards.

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Copper remains weak and inactive. Red Tokat, 190; small Refined Ingots, 200; Bolts, 241; Sheathing, 275; and Yellow Metai ditto, 210 to 215. Tin-Operations are pretty much suspended in view of the approaching auction in Holland. Meanwhile, rates are tolerably well sustained, especially here. We quote: Banea, deliverable either at Havre or Paris, 208; Straits ditto, 200; and English at Havre or Romen, 200; Marseilles is qu'et; Straits and Billiton, 195 to 200; and English Refined, 210. Lead.—The course of this Metal has remained a declining one all over Europe, and some people expect still lower rates. We have given way still further here, French, Spanish and English now being worth but 51:50 francs here; Belgian and German still bring 52; Soft at Havre, 529; Marseilles forms an exception, and is rather firmer at the recent decline, the quotation for Soft Refined being 49:50 to 50; Second Fusion, 49:75; and Manufactured, 57. Speller has shared in the general depression. We quote Silestan, deliverable at Havre, 60:75, and other good brands, 60. Havre is undered at 80:50 to 60. Vieille Montante Sheet Zinc, at Marseilles, has risen 2 france, now being worth 80; other brands remain 78. Fron.—Orders have become scarcer again, weakening the market. An exception is formed by Steel Rails, which have improved to 270 francs. A project has been started by some anterprising capitalists for the building of an undergroud railway to connect various quarters of this city, the cost of which is cettimated at 207 million france, 70 of which the municipality would have to subscribe. Eventually, this scheme may become a reality, but not for the present. The question of the import duty on Iron having been submitted to the Superior Council of Coomerce, the conclusion has been arrived at to make no change, Cout has been dormant; prices are unchanged, and nothing of moment will be done till September. No. 1 F'dry, from Hanging Rock Ores. \$23.00 @ 25.00

### RELGIUM.

Revue Universalle).

Revue Universalle).

Brussels, July 16, 1876.—Pron.—Business has been as quiet as possible during the week under review. In England and elsewhere the competition which our Iron is making just now is engaging once more universal attention, especially in the former country. Belgium Iron manufacturers are now penetrating into the very heart of its great industrial centers. Spain is acting with the utmost liberality by admitting free of duty rallway material and rolling stock for the line of railway with is to connect the mines of Orconera with Luchana, in accordance with a decree dated July 5. Coal.—There has been a fresh decline of about a france per ton in small Coal during the past five weeks. The supposition had been rather generally entertained that this metal had touched bottom, but the foregoing shows that this has not been the case. Our producers are exhibiting a nervous anxiety about the future, and have sent out an army of traveling agents for the picking up of some orders for future delivery, thus preparing a further decline. It would have been better to wait till the month of September.

### GERMANY.

### (Borsenhalle),

(Borsenhalle).

(Borsenhalle).

Hamburg, July 15, 18:6.—Metals.—Our Steel works have been rather unfavorably impressed by the proposed additional duty on Steel and its manufactures when imported into Russia. On the other hand, the German government is trying its best to induce the railroad companies to take off again the 20 per cent. extra freight, which had been added in 18:4. It may also be mentioned that Iron is replacing wood for architectural purposes more extensively in Germany than ever before. Thus some unfavorable features are counterbalanced by more promising ones. The general aspect is, however, not an encouraging one; business in the Metal trade drags along heavily from causes often expatiated upon in former reviews. Copper.—The market has been fittil. Berlin is quiet at 85 to 87 for English and Australian. Here dealings are restricted, yet prices have become firmer. We quote: Drontheim, 87 marks; Minnesota, 104; and Quincy, 92. Tin.—The German markets, as a general thing, have been quitte firm; Berlin quotes: Banca, 83:50 to 84; and English, 76 to 76:50. Nothing has transpired in this market, and prices are unailtered. Lead has, on the whole, been quiet; it is unchanged at Berlin, where Tarnowitz, Hartz and Saxonian command 21:50 to 29 marks. With little doing here, we quote as follows: German, 22 to 22:50; English Pig. 24 to 24:50; and Sheet, 24:50 to 25. Spetter has been generally firm without change in rates.

### HOLLAND.

ROLLAND.

(Kock & Vierboom).

ROTTEBDAM, July 18, 1876—Tin.—There has been little done in Tin on the spot, for which the demand has slackned; on the other hand, it is not pressed on the market. The last figure paid for Banca has been 45½ guilders, on the spot, but, deliverable from the coming sale it has been sold at 45. Billiton on the spot is held at 43½ to 44. In September and October deliveries a large business has been done from 43½ down to 43½. There are still buyers at the latter figure; speculators are in the market operating in this sort.

### AUSTRALIA.

(Sydney? Morning Herald.) (SydneytMorning Herald.)

SYDNEY, May 5, 1876.—Cypper.—According to accounts from South Australia the half-yearly balance sheet of the Moonta Mine has been issued. During the 6 months ended March 20, no less than 10,162 tons of 20 per cent. fine Copper were raised. The news from Sandy Creek is still good; nuggets of various sizes are found every day; surplus hands have gone to the rush, provisions are caree and the roads bad. Tin.—New South Wales has had to lament a drought of several months duration, which rendered the supply of water so scanty that in many parts of the colony mining operations were almost at a standstill. There has been a welcome rainfall since which, although it has relieved some parts of the colony for the time being, has left other districts unvisited.

are universally acknowl dozen in a case. Specia umbers Street, N. V.

Chambers

They are the Simplest, Neatest and Most Durable without the use of the ordinary side handle, and are 1 paper boxes of one dozen each, and packed 24 dox I Warerooms with GRAHAM & HAINES, 113 Chamb

put up in paper Sample and Warero

application. to all others.

on

i to the trade to be superior

oon the rights of any one.

easy grasp for the hand,
They are neatly put up in

CURRY

perhaps, just repeat the current prices as an aid to memory : Marked Staffordshire bars, £9 ; Lord Dudley's bars, £9. 12/6; single sheets, fair quality, £9. 7/6 to £9. 10/; good sheets £10; Severn (singles) sheets £13; and B sheets of Messrs. Baldwin & Co., £16; common bars are easy at £7 to £7 10/. Lord Dudley's rivet iron fetches, £12 for single and £15. 10/ for treble best. In all respects the statu quoante was well maintained, and we are now no wiser. or in any business respect better, than prior to the gatherings. The iron-masters, of course met in large numbers and ascertained each others' "experiences" in a tolerably thorough manner. From beginning to end the Birming ham meeting was a Jeremiad-all lamentation, and metaphorical gnashing of teeth. Few sanguine spirits were to be found, and even their prophetic thermometer did not rise high nor seek lofty flights. There was a general opinion that we have not yet reached the "bottom of the hollow," and that we shall not "see land" for another six months at the earliest. On all sides conversation turned on the reductions of wages enforced at the West Coast blast furnaces, in the Lancashire cotton trade, and the prospective results of the tentative movement for re-establishing the ten hours system. DYNAMITE AGAIN.

Our somewhat volatile acquisition, dynamite, would appear to be affected with a liking for sea bathing at this season of the year—an indiscretion which may well be pardoned in so flery a disposition and temperament. The other day a Boulogne pilot, when off Cape Grisney in his boat, picked up 12 floating cases, each containing about half a hundred weight. Off Dover a pilot rescued 28 other cases, each filled with this interesting explosive. History sath not what was done by him of Boulogne, but it is recorded that when the Dover mantried to run in his cargo the harbor master rejected him and it with contunely and high-handed scorn, so that the ancient mariner himself took alarm and betook himself out to eea, where he carefully and tenderly dropped the boxes overboard. May they remain there undisturbed. At a Yorkshire colliery, near Pontofract, some cartridges of this lik "went off" in a hurried mauner last week, and carried with them numerous specimens of the "human form divine," which said specimens would have been deeply lamented by three disconsolate laborers, had not one been too much overcome to find his feelings—and his limbs. He was, in fact, dismembered, but two still weep lamentingly and speak slightingly of all explosives. Not so a commercial traveler in the West of England, who was last week fined £5 for sending a quantity of dynamite unlabeled by railway. This trusting soul said he was well acquainted with dynamite and its nature, seeing that he "lived with it," having frequently 500 lbs. In the house and 20 lbs. in his bedroom. Even in court he assured the magistrates he had some with blm, and pulled a lump from his pocket. Such affection is truly touching. It is, indeed, a sight to make one feelingly observe that the reciprocity is such during life that in death they will not be divided. Stay! the man may be divided—but no matter.

Another Ererible Explosion. sea bathing at this season of the year-an indiscretion which may well be pardoned in so

### ANOTHER TERRIBLE EXPLOSION.

Steam, notwithstanding the preference for dynamite, gun cotton or other notions, is still able to prove its power now and then, and to demonstrate its slaughtering capabilities. The accident on board the Thunderer, for instance, on Friday last was a proof of this. That vessel, the largest in the world, was being tried over the measured mile in Stokes Bay, off Portsmouth, when one of the boilers burst with such terrible effect that 15 men were killed on the spot, and 60 injured so dreadfully that at the time of my writing the dead number 36, and 15 others are not expected to recover. The cause of the disaster is as yet unascertained, but it would appear to have been a defect either in the safety valve or in one of the boiler plates. The Thunderer had 26 engines of one or other sort on board, the steam being supplied from eight boilers heated by 32 furnaces. Her main propelling engines are of 800 horse-power. The Queen happened to be near in her yacht when the explosion occurred, and she has since sent many inquiries relating to, as well as material assistance for, the unfortunate sufferers. The vessel itself is believed to have been greatly damaged internally.

\*\*TROPICAL HEAT.\*\*

TROPICAL HEAT. TROPICAL HEAT.

We are now passing through a period of fully tropical heat, the temperature for a week having been 126° to 135° in the sun, and 80° to 88° in the shade. At the iron works the puddlers have been compelled to stop during the day. At Bristol, on Saturday, two men died from sunstroke, one of them, singularly enough being a soldier on his way home from India to Ireland. The weather is the hottest we have experienced for several years. experienced for several years.

### FURTHER COMMERCIAL STOPPAGES.

A Cardiff paper (Western Mail) announces that the Wayne's Merthyr Steam Coal and Iron Works Company (Limited), and Powell's Llanturt Collieries Company (Limited), have been compelled to suspend. It was also reported, but has since been partially contradicted, that Mr. Henry Spark, of Darlington, had suspended with £300,000 liabilities.

### SCOTCH PIG IRON TRADE

Matters remain very quiet at Glasgow, where the annual fair holidays are now current. There is no particular alteration in any respect, makers' prices having a tendency to go down. Freights are unchanged. There are 67,859 tons

Freights are unchanged. There are 67,859 tons in Connal's stores.

Messrs. James Watson & Co. said (July 13th, evening): "In the early part of this week the price of warrants drooped from 56/6 to 56/c, cash, but during the past two days there has been more business doing, and the market advanced to 56/8, closing this afternoon sellers at .56/5; buyers, 56/4½. Owing to the annual holidays business will not be resumed in our market until Tuesday first. Shipments last week were 7092 tons, against 13,215 tons in the corresponding week of 1875." We quote:

No. 1. No. 3.

			No. 1.	No. 8.
G. M. B., at	Glasgov	V	 57/	55/
Gartsherrie,	86		 64/6	87/
Coltness,	+6		 69/	57/
Summerice,	44		 61/	56/
Langloan.	0.0			56/6
Carnbroe,	9.6		 89/	55/6
Calder, at Po	ert Dund	A.S	 65/	56/€
Glengarnock				57/
Eginton.	60			56/
Dalmellingto	EL. 60		 and the c	58/
Shotts, at Le				58/
	ioness.			54/6

during the three months ending 31st May, and having verified the same by an examination of their books, I certify the average net selling price per ton for that period to have been £7.6. Beneath is a statement of the different classes of iron sold, and the average net selling price of

Descrip- Weight invoiced.		pric	e per on. d.
Rails28,971 17 1 4 Plates45,659 5 2 0 Bars20,989 2 0 18 Angles12,433 15 0 18	26°80 42°25 19°42 11°58	6 11 7 13 7 11 7 4	8°08 0°00 6°96 2°14
Total103,054 0 0 22	100.00	7 5	11.89

Total. 103,084 0 9 23 100 0 7 5 11 89

Though the trade of the district was very bad for the February quarter, the succeeding three months show a diminution in the production to the extent of between 5000 and 6000 tons. The make of rails declined by nearly 10,000 tons on the last as compared with the February quarter; but plates rose by nearly 5000 tons. There is a decline in the price of each class of iron during the 1st quarter. As compared with the quarter ending February, rails show a reduction of 2/9, plates of 1/2, bars of 2/3 and angles of 1/2. The percentage of rails has been reduced from 33 37 to 26 80, while plates have mounted up from 35 80 to 42 25. It is due to this fact that the total average net price per ton for the quarter ending May of the four classes of iron is but 6d. per ton less, as compared with February. Plates, being nearly £1 per ton more than rails, have brought up the average. In an ordinary state of trade the production of rails more than doubles that of plates, but owing to the rail mills being so largely disengaged the order is reversed. gaged the order is reversed.

### TRADES OF SHEFFIELD.

owing to the rail mills being so largely disengaged the order is reversed.

TRADES OF SHEFFIELD.

There is no local change worth noting. Not only are there present great complaints as to the absence of orders, but there are most serious outcries relative to the almost insurmountable difficulties in the way of getting in accounts. Travelers are still out on most of the home circuits, but they are not, as a rule, clearing their expenses, and write that they can get in hardly any money at all. France and Germany are, perhaps, paying as well or better than most countries with which the local houses do business, but even there buyers are furnishing but very small requisitions.

In respect of the iron trade proper there is no alteration to record. Two or three of the leading vendors of the merchant qualities with whom I have been in communication during the past few days tell me they continue to sell a few small lots for special purposes, but that they had, in reality, better do no business at all, seeing that not only is there no profit obtainable, but their outstanding accounts can only be got in by dint of the most persistent dunning. The works in and near Sheffleld, Rotherham, &c., are doing next to nothing, especially those which are mailly devoted to the production of merchant iron. Most of their departments are closed either altogether or for most days of the week, and, as a necessary con sequence, they are employing comparatively few workmen.

In pig fron there have been several sales, chiefly of foundry numbers and of hematite of West Coast production. Many of the latter have been made for the purpose of stocking at the existing low quotations, the effect of which has been to send up prices, in some instances, about 2/6 per ton. Maryport Bessemer, Nos. 1 and 2, for instance, have recovered to that extent, and now stand at 72/6 and 70/ per ton respectively. One or two of the local houses have now very large stocks of hematites on hand. Splegeleisen of local make is still about £6 per ton, and is meeting with an important influence on the British rail trade. The chairman of the Bilbao Iron Ore Company, Limited, received a telegram on Saturday from Madrid, intimating that, after much discussion, the government had decided to minimize the duties on the exportation of ore from Spain. The municipality of Bilbao, in the vicinity of which the chief mines are situated, had asked the government to impose an export duty of fivepence per ton; but Sir John Brown, who happened to be in Spain on the business of the company, made such representations to the ministers, and was aided by, Senor Balparda, Senor Ochoa and others, that the Cortes ultimately agreed to make the export duty half a real (1½d.), the port tax to remain at one real (2½d.) per ton as before. Senor Ochoa, I may add, is at present the guest of Sir John Brown, at Endcliffe Hall, Sheffield. This result is most satisfactory to all concerned, especially as the two leading Sheffield companies (John Brown & Co., and Charles Cammell & Co.), alone arranged some time ago to import about a million tons per annum. It was stated a couple of years or so ago that John Brown & Co. would erect several blast furnaces at their colleries for the express purpose of smelting Spanish ores, but of late I have heard nothing definite of the project. Nearly the whole of the cutlery houses are badly supplied with orders; the exceptions are two or three firms which are producing common goods by the aid of machinery.

### STAFFORDSHIRE AND BIRMINGHAM.

STAFFORDSHIRE AND BIRMINGHAM.

There is little to add under this distinctive heading relative to these localities to what I have previously stated, except that some interest has been excited by the successful working of the Siemens and Lloyd direct process of iron making in the hands of the Darlaston Steel and Iron Company, of Wednesbury. Under this process ironstone is taken in the rough and is made straight into wrought iron of as good a quality as if it had been gone through the usual routine of the blast and puddling furnaces. The company exhibited samples at the quarterly meetings at the following quotations: Best charcoal bars, £18; sheets, £22 per ton; second quality, guaranteed equal to best Staffordshire bars, £19 for bars and £12 for sheets. The Belgians are said to be still carrying off all the orders for milroads, which they can deliver at 10/per ton under the local prices.

WALES AND MONMOUTHSHIRE.

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WALES AND MONMOUTHSHIRE.

The total quantity of iron exported last week from these districts was 2140 tons of rails, 270 sheets, 320 pig fron and 140 bar iron. The preceding week the total of all descriptions was hardly 1500 tons. Cyfarthfa has this week sent 30 tons of bar iron to Naples—after the mill producing this class of iron had been idle for nearly two years. The tin plate works are doing next to nothing and all the ordinary brands are being sold at prices which leave no profit whatever.

THE METAL MARKETS

### THE METAL MARKETS

must run their course. No artificial treatment will bring about a cure, but in time the evil will wear itself out, and vitality will once again mark the return to a better state of things. It is more than questionable whether for some time past as regards many metals sellers have realized anything but a loss, and probably buyers have as little reason to be satisfied with their purchases as sellers with their sales. But it is impossible that such a condition should continue interminably. Some have already solved the problem by formally closing their houses; others, atthough their works are still kept going, have virtually closed them by not laying themselves out to do business, because they see not their way to a profit. These may probably follow suit, and shut up their works entirely for a time. Meanwhile the difficulties under which the metal trade i. England is laboring are not confined to this country. The various branches which are stargant here are almost as dull and unremunerative as on the Continent; but consumption is going on, population is increasing, the requirements of civilized life are not growing fewer, and, as sure as the history of the past repeats itself in the present or future, so will these dull times be eventually succeeded by times of activity, when profits will be made by the masters, shared in by the men, and buyers will be satisfied that they too are not themselves losers, while conferring benefits upon and augmenting the gains of producers. But there are at present no signs of this much to-be-desired haleyon era in the history of the metal trade of the country, and the inconvenience which is consequently experienced by many, whose livelihood depends upon the turn over of metals to a profit, whether as producers. But there are at present no signs of this much to-be-desired haleyon era in the history of the metal trade of the country, and the processor shippers, or consumers, or mere speculators, must be in many cases very great. Copper.—The market for copper in dual, at £78 for tough; must run their course. No artificial treatment

this metal has been growing gradually easier as the week advanced. Straits and Australian are now quoted at £73 to £73, 10/."

Von Dadeiszen & North report that in "Copper very little has been done, and prices show a further decline. Chili bars have changed hands at £72, 10/ for g. o. b., both spot and forward, and there are no buyers now above £72. Australian is also easier, Wallaroo obtainal·le at £77, 10/, and Burra at £77. English raw and manufactured is very dull. Tin has declined since our last. Straits and Australian are now obtainable at £73, 10/, and for forward delivery at £73; but the demand is slack. English is obtainable at £73. 10/, and for forward delivery at £73; but the demand is slack. English is offering at £79. Banca has declined to 45½fl., and Billiton to 43½fl. Tin Plates are in better demand, and recovered fully 1/ per box from the lowest. Prices, however, are still very low. Lead has further declined 5/ per ton, and now obtainable at £20 to £30. 5/; Spanish, £30. Spetter dull and declining; common Silesian, £22. 5/ to £22. 10/, and specials in outports 5/ to 10/extra. Quicksilver in fair demand at £8 per bottle."

### per bottle." Latest Liverpool prices are:

	£	8.	d.	£	8.	d
Merchant bar	6	15	0.20	7	0	-
Merchant bar, in Wales	6	6	00	6	10	(
Staffordshire	7	7	600	9	15	00000
Ноор	8	0	00	9	0	- (
Sheet	10	0	00	11	0	-
Nail rod	- 8	0	00	9	0	-
Bar, best crown	7	7	6 @	8	10	-
Boiler plates	9	15	00	10	10	-
		2.0	0.00	20	40	,
Tin Plates: f. o. b. in						,
Tin Plates; t. o. b. in	Live					
Tin Plates; t. o. b. in	Live					d
Tin Plates: f. o. b. in .	Live	erpoc 8.	d, per			d
	Liv.	8. 4 19	d. 0 @ 6 @	€ 1 1	8. 6 2	d
Tin Plates: f. o. b. an Charcoal, I. C	Live £	8. 4 19	d. 0 @ 6 @	€ 1 1	8. 6 2	d

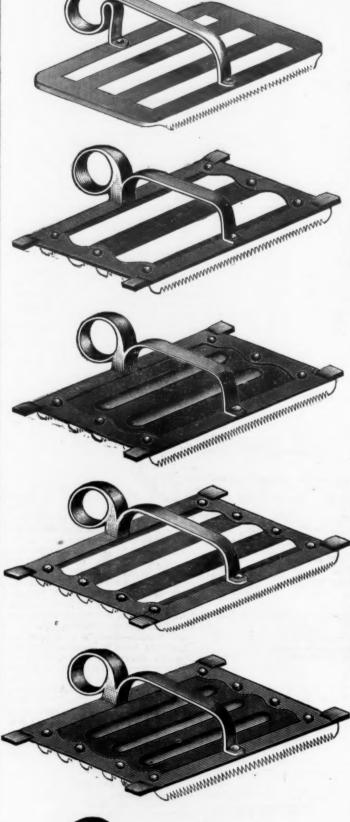
### One of the Smallest Steam Engines in the World.

Among mechanics it is generally conceded that the very small engines, of which we hear now and then, produced by some extremely skillful workman, are of no value, and the labor expended upon them is a mere waste. This view is not altogether a sound one, since a great deal of our modern machinery depends for its success upon a skill of hand equaled only by that required for the production of one of these minute engines. An incident happened the other afternoon in Machinery Hall which the Philadelphia Press thinks worth recording. It was certainly an exhibition of wonderful skill in the workman, which should be employed in a useful direction.

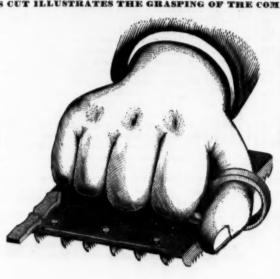
While a large throng of visitors from all countries were standing silently around the Corliss engine, watching its movements with feelings partly of delight and partly of awe, a tall, gentlemanly looking personage, who afterward gave his name and address as Levy Taylor. ola, Ind., joined the crowd. After watch ing the motions for a few moments, the gentleman passed around to one side, and extracting from his pocket a small tin case, took from it what looked like a diminutive alcohol lamp, and striking a match, started a miniature flame and placed the contrivance on a corner of the platform which surrounds the mighty steam giant from Rhode Island. At first glance nothing could be discerned over this lamp but a small excresence, which looked more like a very juvenile humming bird than anything else but a close inspection showed that what was mistaken for liliputian wings was the fly-wheel of a perfect steam engine, and persons with extra good eyes could, after a close examination, discover some of the other parts of the curious piece of mechanism. This engine has for its foundation a 25 cent gold piece, and many of its parts are so tiny that they cannot be seen without a magnifying glass. It has the regular steam gauge, and, though complete in every particular, the entire apparatus weighs only seven grains, while the engine proper weighs but three grains. It is made of gold, steel and platinum. The fly-wheel is only three-fourths of an inch in diameter; the stroke is one twenty-fourth of an inch, and the cutoff one sixty-fourth of an inch. The machinery, which can all be taken apart, was packed in flims of silk. It is to be hoped that this wonderful piece of work is to be placed on exhibi tion alongside of its grand autithesis, but it is

# HOTCHKISS'

# NOVELTY COMBS.



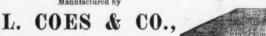
THIS CUT ILLUSTRATES THE GRASPING OF THE COMB.



Manufactured by

# L. COES' Genuine Improved Patent

## SCREW WRENCHES.





We invite the particular attention of the we thylte the particular attention of the trade to our New Straight Bar Wrench, widened, full size of the larger part of the so called "reinforced or jeg bar." Also our enlarged jaw, made with ribs on the inside, having a full bearing on the front of bar (see sectional view). making the jaw fully equal to any strain the bar may be subjected to.

These recent improvements in combination with the nut inside the ferrule firmly screwed up flush, against square, solid bearings (that cannot be forced out of place by use), verifies our claim that we are manufacturing the

rongest Wrench in the market.
We would also call attention to the fact, that in 1869 we made several *important* improvements (secured by patents), on the old wrench previously manufactured by L. & A. G. Coes which were at once closely imitated and sold as the Genuine Wrench by certain parties who seem to rely upon owr improvements to keep up their reputation as manufacturers, and although the fact of their imitating our goods may be *good* evidence that we manufacture a superior Wrench, we wish the trade may not be decrived on the question of originality Trusting the trade will fully appreciate our recent efforts, both in improvements on the Wrench and in the adoption of a Trade Mark, we would caution them against imitations. None genuine unless stamped

"L. COES & CO."

Warehouse, 97 Chambers St., & 81 Reade Sts., N. Y. HORACE DURRIE & CO., Sole Agents.



### GOLD MEDAL Non-Extensible Razor Belt.

RE-ISSUED MAY 13, 1873, and JUNE 9, 1874.

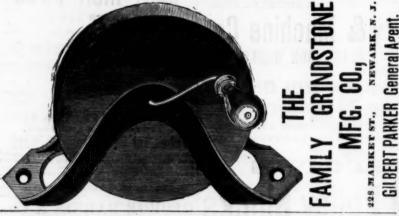
In this Strap the liability of the leather to stretch and become loose and porous is prevented by the use of a patented non-extensible base, which supports the seather and secures

PERMANENT ELASTICITY.

We make this style with single rod, double rod, and wood frames, and intend that it shall, in quality spare favorably with our other well known brands.

BENJAMIN F. BADGER & SON, Manufacturer

Badger Place, Charlestown, Mass.





938 to 954 River St. & 67 to 83 Vail Ave., Troy, N. Y

ALVES

Also FIRE HYDRANTS



the best quality of Steel, highly ring complete for hanging. It polished or painted, with birch usually sold for \$5.00.

We will make it an object for every dealer to handle them. PRICE \$15, PER DOZEN SETS.

This set of GARDEN TOOLS, This MOSQUITO BAR is large is put up in a nice paper box, and enough to cover a full size bed. is superior to any other in the It has a nice Folding Frame, best market. The tools are made of quality of netting, with cord and polished, and of malleable iron is as good as those which are

PRICE, \$24 PER DOZEN.



### CENTENNIAL CHAIR.

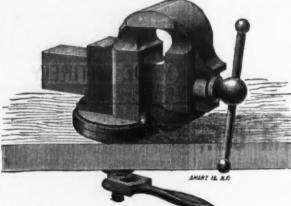
This Chair is made of the best second growth White Ash, finished on the wood, with Brussels Carpet Seat. It shuts up to the size of a single chair post, and weighs only one pound. Every person who forgets to take one with him when he goes to the Centennial, will be sorry when he gets there, as no chairs are provided for visitors, and they get very tired. Every store in the land can sell a few of them at a profit. They are a very popular article here.

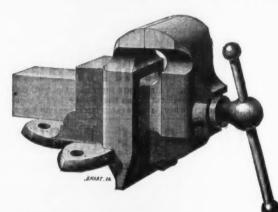
PRICE, \$12 PER DOZEN.



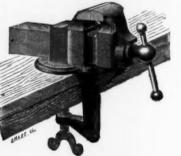
# MILLERS FALLS CO., 74 Chambers St., N. Y.

# Simpson's Adjustable Parallel Vises.



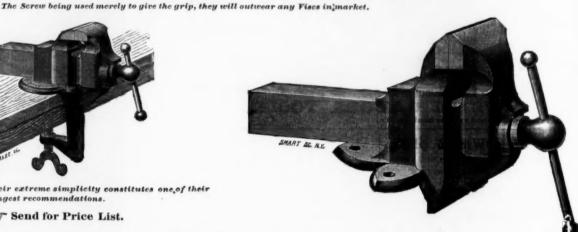


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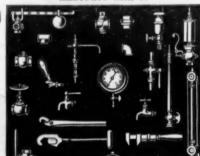
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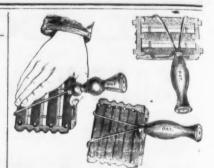
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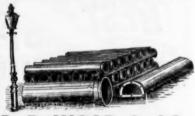
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	Parker Gilbert, 225 Market, N. J. 25 Wood Walter R., 288 and 286 Front, N. Y. 33 Worth Ington A. Sone, North Ambant, O. 33	Min Min Ja
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2	King, Briggs & Co., 89 Chambers, N. Y	H L R R
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1 1	Middletown 1001 Co., Fe 20 Cliff, N. Y. 31 Milleto Falls Mfg. Co., 34 Chambers, N. Y. 25 Part Geo., Buffalo, N. Y. 5 Part Geo., Buffalo, N. Y. 5 Pert Geo., Buffalo, N. Y. 5 Pert Geo., Buffalo, N. Y. 5 Sperry D. R. & Co., Batavia, 11. The Hull & Belden Co., Dauburr, Conn. 85	Pa Pa Pa
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6	Spender & Underhill, 51 Beekman, N. Y. Spender & Underhill, 51 Beekman, N. Y. Henting Bangines, Makers of, Crane Bros. Mfg. Co. Chicago, Ill. Otis Bros. & Co. & 54 Broadway, N. Y. Hog Ringevs. Chambers & Quinian, Decatur, Ill.	9 P1
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11	Hartford Steam Boiler Inspection and Insurance Co., 3  Fron Brotkers.  Boynton Geo. A., 70 Wall, N. Y.  Crane U. O., 104 John, N. Y.  Hatr A. G., Pittsburgh, Pa.  Hazard T. D. 304 Pearl, N. Y.  Smith W. Minor, 96 Beaver, N. Y.  Fron Bildgea.  Leighton Bridge and Iron Works, Rochester, N. Y., 1	4 P
11	Leighton Bridge and Iron Works, Rochester, N. Y., I Iron, Charceal, Warm or Cold Blass, Quincy John W., 56 William, N. Y. Iron Commission Merchauts, Brown T. Horace, 2054 Walnut, Phila, Hand Jas, U. & Co., 61s and 61s Market, Phila, Spooner & Collins, St. Louis, Mo. Iron, Plg. Inporter of.	4 P
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14 13 39 39	Cheveland, Brown & Co., Cleveland, O. Cover paniel F. 88 Wasnington, N. Y. Huerstel G. 99 Market Silo, N. Y. Fuller, Lord & Co., 199 Greenwich, N. Y. Fuller, Dana & Fitz, 110 North, Boston, Harrison & Gilloon, 558 to 582 Water, N. Y.	6 P
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88 88 88 4	J. & J. Rogers Iron Co., Ausable Forks, N. Y. Leonard John, 489 & 461 Wess et. N. Y. Mitwaukee Iron Co., Milwaukee, Wis. Nobilt & Bro., Germantown Junction, Phila. Ou. Dominion Iron & Nail Works Co., Richmond, Va.	5 R 6 R 5 I
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Lackawanna Iron and Coal Co., Scranton, Pr. 5 Mugyale Steel Works, Nicotown, Phila., Pa. 38 Miller, Micell & Parkin, Philagraphy 39	
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Oakley & Keating, 40 Cortlandt, N. Y	1
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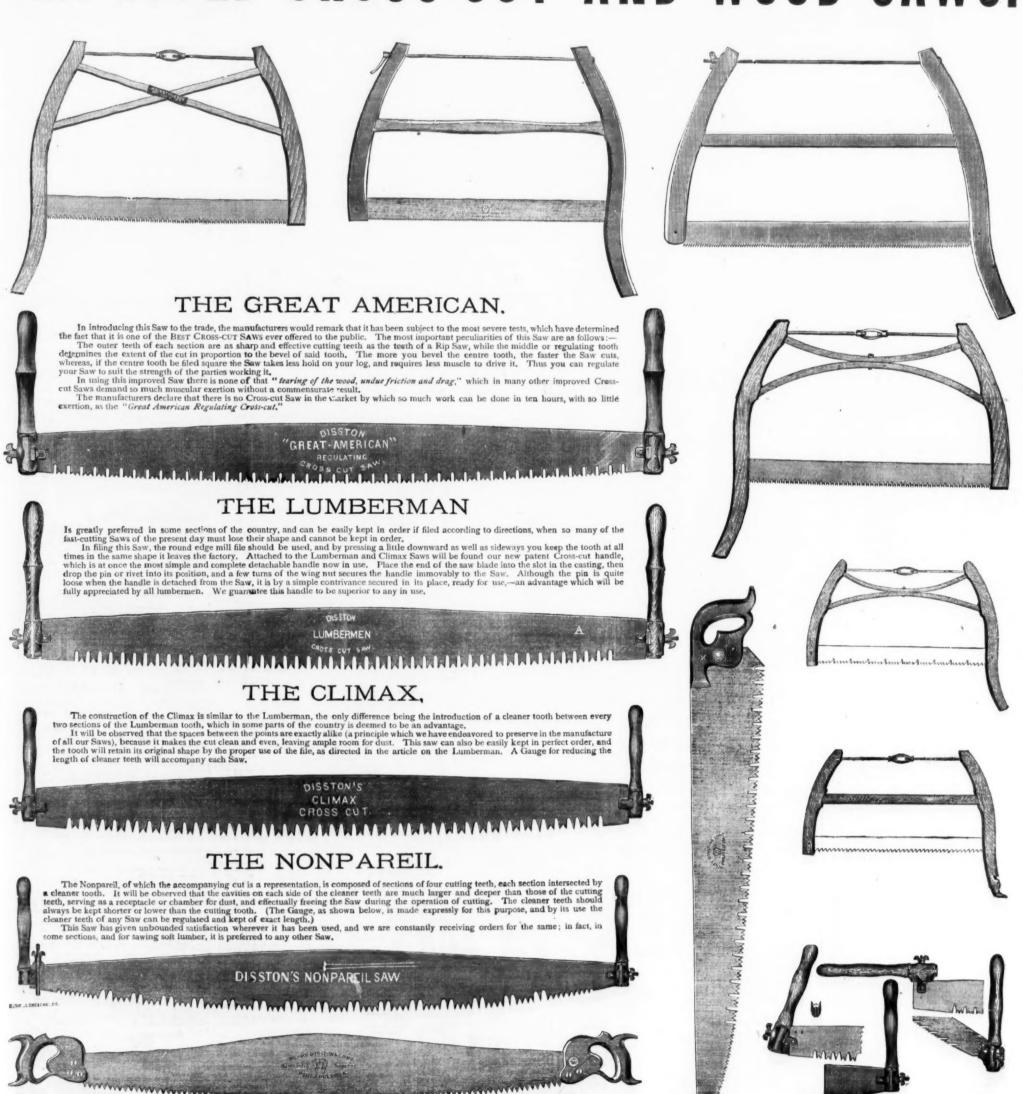
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et et	Star grand, 18c.;   Morgan	* *
et et et	Here Shoes  Buttern Shoes  R. I. Pattern. W. keg. 4482  R. I. Pattern. W. keg. 512  Mule Shoes W. R. I. Pattern. W. keg. 512  Perkins' Snow W. Reg. 5476  The Boston Horse Shoe. Per keg. 557  The Boston Horse Shoe. Per deg. 557  National Per doz \$650, dis 10  Noveity Ice Breakers Per doz \$650, dis 10  Noveity Ice Breakers Per doz \$650, dis 10  Noveity Ice Breakers Per doz \$750, dis 20  White's Sliding Head Picks Per doz \$750, dis 20  Wood Head Picks, Sargent's Per doz \$175, dis 60&10  Iron Per doz \$175, dis 60&10  Iron Per doz \$175, dis 60&10  Iron Per doz \$175, dis 60&10  Ice Mellets, Pick in Head Per doz \$175, dis 60&10  Ice Azea, Smali, Last or Maileable. Per doz \$170 in  Kettles.	KKKKK
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% %	wood Head Picks, Sargent'sper doz \$1.85, dis 60&10 Iron "" per doz \$1.85, dis 60&10 Ice Mallets, Pick in Headper doz \$1.75 ne "Pick in Handleper doz \$3.00 ne	5 1
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TO SECURE THE RESIDENCE OF RESI	Noon Noon Noon Noon Noon Noon Noon Noon	with the second	gland	winden wi	Det Spr.,—Soll act, Ri Lact, R	ings. a Eves a Eves p, &c. p, &c. and M Wood, all les a (Cro all 22-0  100, 18 Eves a (Sec.)	ers. \$15: \$15: \$15: \$15: \$15: \$15: \$15: \$15:	## P doz # No. 0, 1 No. 0 No. 1 No. 0 No. 1 No.	10   10   10   10   10   10   10   10	AMERICANA DISPOSO DISPOSOS DE PORTO SE LA COMPANIA DE COMPANIA COMPA
TO BE SEED TO BE LESS BUILDS F REC	Noon New York New Yor	which is a second of the control of	gland	windeghts windeg	ow Spr.—Soll of the control of the c	ings. a Eves a Eves p, &c. or and M Wood, all los all los cross co. ser and M Wood, ser all los co. ser all los se	ers. \$15: \$15: \$15: \$15: \$15: \$15: \$15: \$15:	## doz # 1	Color   Colo	2000日的1000日 1000日日 1000日555555日日日前1000日常常温度 1200日南南西 1200日日前100日日 1000日日 1000日 1000日 1000日 1000日日 1000日 1000
I THERE IS BUILDS & RESELLO	No N	with the second	gland	winden wi	ow Spr.—Soll level of the control of Scr. of Co., and the control of Co., and	ings. a Eves a Eves ber Fill z No. 1 ber all legs co. and M wood, all legs co. and M co. all legs co. and d co. all legs co. and d co. all legs d co. all le	ers. \$15: \$15: \$15: \$15: \$15: \$15: \$15: \$15:	#60	dis	1990日的1500、1000日日日 1000日5日5日5日5日5日5日5日5日5日5日5日5日5日5日5日5日5日5
I THESE BUILDING	Near Season Seas	der in de la constant	gland	winden wi	ow Spr.—Soll level of the control of	ings. a Eves a Eves p, &c. and M Wood, a Closs a Cos a	ers.  \$15:  \$15:  \$15:  \$15:  \$15:  \$25:	## doz # No. 0, 1 No.	Color   Colo	2000日的1000日 1000日日 1000日 1000日日
I THERE II US F RERBLOBAN EN	Neas Septiment of the control of the	with the second	gland and a get a grand a get a grand a get a grand a get a grand a gr	iwinde ghts wind ghts wind ghts wind shad shad shad shad shad shad shad sha	Det Spr.,—Soil act, Hi	ings. a Eves r Fill E No. 1 Ber Ser Ser Ser Ser Ser Ser Ser Ser Ser S	ers. \$15; \$15; \$15; \$16; \$16; \$20; \$16; \$20; \$16; \$20; \$20; \$20; \$20; \$20; \$20; \$20; \$20	## doz # 1	dis	2000日的热风,即约即300 日达在50500日的10050日的 2005日的 2005日的第三人称形式 医蛋白蛋白蛋白 医皮肤皮肤 1005日的1000日 1000日的100

mond's Expelicion and Granger 20 dec 11 (0)	
Blood's Excelsior and Granger\$\pi\$ dos 11 00   "Young Americs 10 50   "From Itst."   15 00   From Itst."   15 00   From Itst."   15 00   From Itst.	METALS.
Bush. dis 20 % Scythe Snaths dis 30 % Shears and Sciences.	HONDUTY Bars, I to 1% cents per lb., Sheet, Band, Hoop and Scroll, 1% to 1% cents per lb. Provided, that
Cast Steel	HON.—Durr Bars, 1 to 1% cents per lb Sheet, Band. Hoop and Scroll, 1% to 1% cents per lb Provided, that none of the above from shall bay a less rate of duty than 36 per cent. Fig. 47 per ton; Polished Sheets, cents per lb.; Wrought Scrap, 88 per ton; Cast Scrap to per ton. Railroad, 30 cents per 100 lbs. Boiler and Plate. 1% cents per lb.
Scissors. dis 50 % Pruning. per doz \$10 00—dis 40 g	#6 per ton. Railroad, 70 cents per 100 lbs. Boiler and Plate. 1 1/2 cents per lb.
Barnard's Lamp Trimmers	Pig Iron—American.         # ton, \$22 00 @ 23 00           Foundry No. 2.         20 06 @ 21 00           Gray Forge.         19 00 @ 20 00
Patent Roller	Gray Forge. " 19 00 @ 20 00 Cotness. " 30 00 @
Sliding Shutter, R & E. List	Coltness
Shovels and Spades. Allee Alle Allee	Bar iron. Am. Renned, at mill
Rowland's dis 25 %	Rails.
Dunning a Shovels and Scoopsdis #U&7% \$	American, at works, currency
Shave    S	Wrought Scrap, from yard 29 00
States. quare Frames, Round Cornered, by case	Common fron.  4 to 8 in. round and square to 6 in. x % to 1 in
Character.	& to 2 in round and square)
Booke Snaves. Defiance Metallicnew list dis 25 % Fondis 38%& lu \$	\$\ \tag{10.75 \text{ in round and square}}\ \tag{10.75 \text{ in x S} \text{ fo 1 in.}\ \text{ in x S} \t
North Carolina Handle CO	Swedish Iron.  Ordinary sizes
30fuey	Sheet Iron. Common R. G. R G.
onglass'	American and English. American. English. Nos. 10 to 20 99 35 4 4c 53cc
By the case	2 to 26
" Boardman's, new list	G ivanized, 14 to 20, prime, W 2 84c; 2d quality W 2 74c
lerby Silver Co	27 " 1056 " "956 " 28 " 1156 " " 10 " " 10 " " 10 " " 10 " " " 10 " " " 10 " " " 10 " " " 10 " " " 10 " " " 10 " " " 10 " " " "
erman Silver	Rect   Form.   R. G.   R. G.
Douglass'   per doz \$9.00 d:s 30&10 %	One piece : ottangue annou it on bison it
Stocks and Dies	\$ 5 5 6 7 Inch. \$ 2250 3:50 4:50 5:25 6:50 per doz.
" Axe Stone	BUSSTATRON.  414 5 514 6 7 Inch. 15'00 7'00 9'50 12'00 14'00 per doz.
Vashita Stone. No. 1, W n Sic net No. 2, W n Sic net No. 2, W n Sic net	15'00   7'00   9'50   12'00   14'00 per doz,   19PER - Dol v Pig, Bar and Ingot, 5c.; oid copper,   deents & m.   m.   m.   tochiding all articles of   which copper is a component of chief value)   45 % ad
rkansas Stone No. 1, 7 5 5 1 35 net	which copper is a component of chief value) 45 s ad valorem.
Stove Polish. P gross, 6 00	Valoren. American ingot
old Medai. # gross \$6 00 dis 25 % disting Sun	Braziers Copper, ordinary sizes, over 16 oz., per square 100.  Braziers Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot
Stocks and Dies	12 oz., per square foot
ry Squares and T Bevels	Circles, 84inch diameter and over
" No. 2	Circies, 8 41ach diameter and over
Tacks, Brass, &cList of January 1, 1876. acks, Half Weight, American	Copper Bottoms, Sc. # mnet No Copper is Sheathing except 14x48 nches, and not to
" Half " Sweden danshi	
Leather Headdis 10de	Section of the steep of the s
Arids, Half Weight	O'NEILL'S PATENT PLANISHED COPPES.  14 and 16 oz. and heavier
20 27 11 10 10 HC. W m. tils 10 V	12 oz. and lighter
Trap Horers. dis 20&10 %	14 and 16 Oz. and neavier
Double Pointed Pointed   data   35/26/10   7   Pap Borers   dis 30/26/10   3   4   10   5   10   10   10   10   10   10	14 and 16 oz. and heavier
dis 30 % dis	Brown & Sharp's Gauge the Standard except for Fine Wire.
Thermometers.	BRASS MANUFACTURERS' PRICE LIST.
'insted	Net cush prices for Roll and Sheet Brass, Wire, &c., for quanticles of IM pounds and over st one time. For less than 100 pounds, three cents additional.
ood Bottom	HIGH BRASS All Nos. to No. 28, and widths 14 in. and under
in Case	20 in. inclusive
Trais-	clusive. All Brass thinner than No. 38 is Placers' Brass. at45c Sheets 24x48 in. and all sheets cut to particular sizes
Blake's Patent	and lengths. SSc Printers Rules. 40c Saysta wider than 30 in and under 40 in. 40c
Nut Co.)	Since to wheel and the second of the second
Cage, W doz 2 50, dis 10 5 Patent Self Setting. Patent Self Setting. Patent Self Setting. Per doz holes 25c net Catchemalive. Roy 6, 25 125 net	4 4 4 4 40 in
Trowets. othrop's Brick and Plastering. dis 10 \$\frac{1}{2}\$ dis 10 \$\frac{1}{2}\$ dis 15 \$\frac{1}{2}\$	Four cents % % more than High Brass.
Trowels-   Otherp's Brick and Plastering	Gliding Metal, 7c, \$\psi\$ more than High Brass. In Bars. 42c Platers' or Gold Metal Sawed. 45c Planed or Polished. 48c
orrall's Brick and Plastering	FOR SLITTING.
Triers. dis 25 5 utter and Cheese. dis 25 5 Ventilators (Window). lekel and Gilt. per dozen \$16-90 @ 18-00	Metal, in width 2 in. to 36 in. to No. 30, inclusive, ic. per B. advance. Metal, in width 2 in. to 1 in., thinner than No. 30, 2c. per
	B. advance.  Metal, in width 1 in. to 1/2 thinner than No. 30, 3c. per B. advance.  Metal in width 1/4 in. to 1/4 to No. 30, 3c. per B. advance.
olid isox, Trenton	Metal, in width 1/4 in. to 1/4, to No. 30, 2c. per B. advance.  Metal, in width 1/4 in. to 1/4 thinner than No. 30, 5c. per B.
** Sargent's	advance. Metal, ¼ in. in width and less, 10c. per lb. advance GERMAN SILVER MARKET METAL AND WIRE
Merrill's   dis 25 \$   Merrill's   dis 15 \$   Fivher & Norris   dis 15 & 10 \$   Ruttale	4 per cent., 12 in., to No. 26
Stevens' dis 25 % Simpson's Adjustable dis 25 %  White a Hoppon's Adjustable dis 20 %	10 " " " 90 1·10 15 " 1·00 1.35
Merrill's   dis 15 5	18 " " 1-10 1-50 20 " " 1-20 1-20 Corman Silver Sheets over 12 in wide, and weighing
anal (Pugsley & Chapman)new list dis 30 % oal, Garden and Stone (Pugsley & Chapman)dis 30 %	more than 16 Bs., \$2 per B., net. Advance 2c. for each additional in., in width above 12 in., and 2c. per B. on each No. thinner than Nos. 26 to 36 inclusive.
levised listdis 60&10 g	inclusive. All German Silver thinner than No. 36 is Platers' at 50c. per b. additional.
rass and Copper	All German Silver thinner than No. 36 is Platers' at 50c. per b. additional. German Silver Scrap one-third less than net price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, hair the price of Scrap.
19 @ 26 dis 50 @ 25 9 27 @ 36 dis 55 @ 60 1 0 @ 18 dis 40 @ 45 1	BRASS AND COPPER WIRE.  Glid g and High Brass. Low Brass. Cop'r. Nos. 0 to 20
Wire- rass and Copper. List of Oct. 27, 1815, net right and Annealed. Nos. 0 @ 18 dis 45 @ 20 5  19 @ 28 dis 50 @ 55 3 2  Oppered. 9 @ 16 dis 45 @ 20 5  Oppered. 9 @ 16 dis 45 @ 20 5  Oppered. 0 @ 16 dis 45 @ 20 5  Oppered. 0 @ 18 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Oppered. 0 @ 20 dis 50 @ 20 5  Op	Nos. 21, 22, 23,
ast Steel	
alvanized Telegraph. Nos. 10 and 11 # B 105 tanealed Fence. Nos. 8 and 9 us 50 s	Fancy Wire not less than 4 cents per pound advance
ence Staples	Spring Wire, 2 cts. per lb. advance.  PINE WIRE, BY THE OLD ENGLISH FINE WIRE GAUGE.
udd's Picture Wiredis 50 % lothes Lane Wireper coil 55 @ 60c. net Wrenches.	High Brass. Low Brass. Cop'r. No. 36
wyrencaesdis 45 5 merican Adjustabledis 45 5 axter's Adjustable "8" New List, May 1, "76. dis 20 5 " Diagonal "dis 20 5 ollins & Co. *dis 45 5	NO. 28. 0 46 0 50 0 56 NO. 28. 0 46 0 50 0 56 NO. 29. 0 48 0 52 0 58
onins & Co. *	High Brass   Low Brass   Cop'r
(Malleable) dis 65&10 g iamond Hardware Co. dis 40 g indsay's Patent. dis 25 g	NO. 35. U10 U64 081 NO. 34. 064 068 091 NO. 35. 069 073 100
att's Pattern	No. 35. 0'25 0'82 1'15 No. 37. 0'95 0'98 1'28 No. 38. 1'28 1'38 1'58
emis & Call's Patent Combinationdia 200-5 c	Ten cents per pound extra for Spooling.  TURING.  Plain to No. 20 inclusive, above 1/4 in. to 3 in
emis & Call's Patent Combination	" above 3 in 50
emis & Call's Patent Combination dis 2025 5 " Merrick's Pattern dis 2522 5 " Merrick's Pattern dis 2522 5 " Brigg's Patent dis 2525 5 !lken's Pocket (Bright) per doz \$10'00—dis 505:10 5 Wringers.	Nos. 21, 22, 23, two cents advance on List for each Number.
emis & Call's Patent Combinationdis 2005 5  "Merrick's Patterndis 2005 5  "Merrick's Patterndis 2005 5  "Ring's Patentdis 2005 5  "Ring's Patentdis 2005 5  "Wringersdis 2005 5  Wringersdis 2005 5  "Wringersdis 2005 5  "With 7200 7000	above 3 in. '50 Nos. 21, 22, 25, two cents advance on List for each Number. Nos. 24, 25, 36, four cents advance on List for each Number. Above No. 26, special rates.
emis & Call's Patent Combinationdia 2005 5  "Merrick's Patterndia 2562 ½ 6  "Ricg's Patentdia 2562 ½ 6  Wringer's Patentdia 2006 10  Wringer's Patent	Nos. 21, 22, 23, two cents advance on List for each Number. Nos. 24, 25, 26, four cents advance on List for each Number. Above No. 26, special rates. Plain ½ (noh
emis & Call's Patent Combinationdis 2005 5  "Merrick's Patterndis 25042 5  "Merrick's Patterndis 25042 5  "Refrick's Patterndis 25042 5  "Wringersdis 25042 5  "Wringers	Nos. 21, 22, 23, two cents advance on List for each Number. Nos. 24, 25, 36, four cents advance on List for each Number. Above No. 26, special rates. Plain & inch
Mken's Pocket (Bright)	Nos. 21, 22, 23, two cents advance on List for each Number. Nos. 24, 25, 26, four cents advance on List for each Number. Above No. 26, special rates. Plain ½ inch
Miken's Pocket (Bright)	Nos. 21, 22, 23, two cents advance on List for each Number. Nos. 24, 25, 26, four cents advance on List for each Number. Above No. 26, special rates. Plain is inch

	THE 1RON AGI	T.
METALS.	Plain. 28	Rosie
HONDUTY Bars, I to 1% cents per lb Sheet, Band, Hoop and Scroll, 1% to 1% cents per lb. Provided, that		Uı
RON.—DUTT Bars, I to 1% cents per lb., Sheet, Band, Hoop and Scroll, I% to 1% cents per lb. Provided, that one of the above 1 ron shall nay a less rate of duty than 35 per cent. Fig. 17 per ton; Polished Sneets, 3 cents per lb., Wrought Scrap, 48 per ton; Cast Seran, to per ton. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1% cents per lb.	4 Per cent. 85 6 " 95 9 " 110 12 " 128	Ve
Ig Iron—AMERICAN. FOUNDITY NO. 1. Fton. \$22 00 @ 23 00 FOUNDITY NO. 2. 20 (6 @ 21 00 Gray Forge. 19 00 @ 30 00	8 9 9 9 9 190 12 4 170 17 7 120 18 16 Per cent 146 18 9 165 20 9 165	W
	MISCELLANEOUS.   29   Common Plain Brass Pall Ears.   29   Hose Pipes, 500 and over   21   under 500.   25   Door Rall.   40	Ye
Gartsherrie 4 29 00 Egiinton 37 50	Door Rail	Zii
Am. Renned, at mill.,	Gilding, 20 cents. Turnings, Filings and Chips, half the price of Scrap. Orders for Goods on this list received on or after this date, will be filled at the rate herein stated, Terms—Net cash. No discount silowed. Interest to be added after thirty days.	Ltı
Crap.	A NUMBER OF STREET	Spe
Bar Iron from Store.  % to \$\ell\$ in. round and square \\ - to \$\ell\$ in. x \geq to \$\ell\$ in \\ \$\text{\$\exitt{\$\tex{\$\text{\$\exitit{\$\text{\$\text{\$\text{\$\text{\$\texi{\$\text{\$\texi{\$\texitit{\$\texit{\$\text{\$\texitit{\$\texi{\$\texi{\$\texi{\$\texi{\$\texit{\$\	LKA D-Duty: Pig \$1 per 100 lbs.; old Lead, 1% cent per 1b. Pipe and Sheet, 2% cents per lb.	Ser
100 in. x % to 1 in. % to 2 in round and square } # 35 56 t to 6 in. x % to 1 in. 1 to 6 in. x % to 1 in. 1 to 6 in. x 1% to 2. # 35 276 cols—% and 1 1-6 round and square # 35 276 and — 1 to 6 x 12 to 3-16 # 32 290 wedish I ron # 32 290 wedish I ron # 32 290	English	Ne
ands—I to 6 x 12 to 8-16. # B 2-9c wedish Iron. Ordinary sizes. " 130 00 @ 182 50 Plow size. "	Tir Lined Pipe. dis 10 % 165c Sheet. dis 10 % 10c. Shot. dis 10 % Drop. 9%c. Buck. 10%c. BABBITT METAL.	As
Sheet Iron.	M. P. U	Ch
21 to 26	STEELDuty: Bars, Ingots, Sheets and Colls, valued at 7 cents perlb., or under, 2½ cents; over 7 cents, and not above 11, 3% cents per lb. and 10% ad val. Rallway Bars 1½ cents per lb. Rall.	Fre
American and English. American English os. 10 to 24.	NTKELDUTY: Bars, Ingots, Sheets and Colls, valued at 7 cents perlb., or under, 2% cents; over 7 cents, and not above 11, 3 cents per lb. over 11, 3% cents per lb. and 10% ad val. Ballway Bars 1% cents per lb. Railway Bars, in part Steel, I cent per lb. Provided, that Metal cemented, cast or made from from by the Besachner or pneuma. C process, of whatever form or description. shall b classed as	Gli
113c " 113c " " 10 c  atent Planished A, 13c ; B, 11c * b  nssla, Nos. 8 to 16. " 14 c  " Stained, No. 1 " 134c	Au ricas Cast Steel.   15 @ 16c	E
One piece Corrugated Sheet Iron Elbows.  OHABOOAL IRON.	Tire	
5 55 6 7 Inch. 80 450 525 650 per dos. RUSSIA IRON. 5 5 55 8 7 Inch. 7 100 950 1200 14000 per dos.	Saw Plate, mill and mulay	
OPPER - Do v Plg, Bar and Ingot, Sc.; old copper, i cents @ a; Malaractured (including all articles of	Tool.	bes
valorem > 22 @ 22 %c	Hammer. 15c, Gun or Homogeneous. 15c, English Steel,—payable in gold, net. Rest Cast	
	# Extra Cast	
12 oz., per square foot	" Bliater, let quality. " 14½c" " 24 quality. " 13 c  German Steel, Best. " 11½c  de 2d quality. " 10½c"	
saters Copper, ordinary sizes, over 16 oz., per square 1000.  saters Copper, ordinary sizes, 16 oz. and over 12 oz., per square 1001.  2 oz., per square 1001.  2 oz., per square 1001.  saters Copper, 12 oz., per square 1001.  saters Copper, over 12 oz., per sq. ft 31c.  12 oz., \$\psi\$ sq. ft. and ughter. 36c.  12 oz., \$\psi\$ sq. ft. and ughter. 36c.  12 oz., \$\psi\$ sq. ft. and ughter. 36c.  13 copper 1001.  Saters Copper 10	Gun or Homogeneous.   18c	
pper Holtoms. 38c. * B net No Copper is Sheathing except 14x43 nches, and not to ceed 34 oz. to the square foot. cathing Copper, tinned on one side, by the	Square and Round   12%c   18/4   18	
case	SPELTER—DUTY:         In Pigs, Bars and Plates, \$1 50 per 100 lbs.           Silesian, cash.	
O'NEILL'S PATENT PLANISHED COPPER.  14x48. and 16 oz. and heavier	American  TIN-DUTY: Plates, Sneets, Tagger and Terne, 11c per lb.; Electro-galvanized Plates, 2 cents per b; Manufactures of, not enum-tated, 55 per cent, ad val. hars, Blockand Figs. free. Banca, sublest to dutyof lo	
Boiler Sizes. 7 in., 14x53. 8 in., 14x56. 9 in., 14x60 and 16 oz. and heavier 39c. By the case, 38c P 2 (And all sizes not over 20 inches wide.)	Bancs, Blockand Pigs, free.         Banca, subject to dutyof 10 per cent.           Bancs.         ₱ ₺ 25c., currency           Straits.         ₱ ₺ 22c., currency           Banklsh         ₱ ₺ 22c., currency	
and 16 oz. and heavier	TIN PLATES, CURRENCY PRICES.  1 C 10x14, Prime Charcoai	-
own & Sharp's Gauge the Standard except for Fine Wire.  BRASS MANUFACTURERS' PRICE LIST.	1 C 10x14, Prime Charcosi 8: 50 @ 8: 75 12x12, 9: 9:00 @ 9: 25 14x20, 8: 9: 25 @ 9: 51 1X 10x14, 10: 75 @ 11: 00 12x12, 9: 11: 75 @ 11: 00 12x12, 9: 11: 75 @ 11: 75 12x12, 9: 11: 75 @ 11: 75 12x12, 9: 11: 75 @ 12: 90 1C 12xx17 8: 00 @ 8: 75 1X 12xx17 10: 25 @ 10: 50 1X 12xx17 1	0
October 77th, 1875, et cush prices for Roll and Sheet Brass, Wire, \$c., for quantities of its pounds and over st one time. For ess than 100 pounds, three cents additional.		9
IIGH BRASS I Nos. to No. 28, and widths 14 in. and under	CORF TIN PLAYE.	
c. W m advance on each No. above Nos. 28 to 38, inclusive.  I Brass thinner than No. 38 is Placers' Brass. at	TERNS PLATE.  Prime Char. 20 quat. Coks. 1 C 14x20. 1725 750 700 6, 725	-
and lengths	I C 14x20 4775 7*50 7*00 6.725 I X 14x20 10*00 15*00 15*00 14*50 415*00 1 X 20x28 21*00 15*00 415*50 14*50 415*00 I C 20x28 21*00 1 C 20x28 22*00 I C 14x20 M F. Brand \$8.75	
Lutive   L	1 C 14x30 M F. Brand	
LOW BRASS.	ouect	-
iding Metal, 7c, \$\psi\$ is more than High Brass.  In Bars	Paper Stock, Old Metals, & c	
etal, in width 2 in. to 34 in. to No. 30, inclusive, i.e. per b. advance. etal, in width 2 in. to 1 in., thinner than No. 30, 2c. per be advance.	Canvas linen 6 6 6 6 6 7 No. 1 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	_
b. advance. etal, in width 1 in. to 1/4 thinner than No. 30, 3c. per B. dvance. etal, in width 1/4 in. to 1/4, to No. 30, 2c. per B. ad- vance.	** No.2	h
tal, in width 1/4 in. to 1/4 thinner than No. 30, 5c. per B. dvance. tal, 1/4 in. in width and less, 10c. per lb. advance observan silver market metal and wire	Hunny bagging. 2 4 24  Kentucky bagging. 5 4 6 5 Waste paper and scraps. 1 6 6 8	NO zine
per cent., 13 in., to No. 26	Kentucky Baie rope. 4 64 4/4 Oakum junk, No. 1 5/4 66 5/2 No. 2 6/4 Grass rope. 8/4 6/4	
" " 90 170 " 100 1.35 " " 110 1.50 " " 120 150 " 120    120 150	Tarred Shaking. 1% 6 1% White Couar Cuttings, ali paper. 7 6 "Envelope " muslin lined. 5 6 "Envelope " 7 6	A. I
derman Silver Sheets over 12 in. wide, and weighing ore than 16 Bs., \$2 per B., net. dyance 2c. for each additional in., in width above 12, and 2c. per B. on each No. thinner than Nos. 26 to 36 thusive.	Colored. 6.8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	A
All German Silver thinner than No. 36 is Platers' at 1. per b. additional.  per b. additional.  perman Silver Serap one-third less than net price of 12 Market Metal. German Silver Turnings, Filings and ips, half the price of Scrap.	Book Stock, Mixed 1, Heavy Stock 4% 6  Book Stock, Mixed 25 6 25 1  Newspaper Stock 2, light 25 6 25	
BRASS AND COPPER WIRE.  Glid'g and High Brass. Low Brass. Copr.  6. 0 to 20	Printe 15 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
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mailer than No. 8040 044 0.50	Copper	TI
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High Brann. Low Brain. Copr. 26	Gnelten G AV	Α.
High Brans. Low Brain. Copr.   268	Burnt Ironper (on \$7:00	G.
. 38	Paints, Oils, etc.	Pa
en cents per pound extra for Spooling.  TUBING.  in to No. 20 inclusive, above 1/2 in. to 3 in	Biack lamp—Coach Painters	WI
a. 21, 22, 23, two cents advance on List for each number. 8, 24, 28, 26, four cents advance on List for each number. 90 eNo. 26, special rates.	Biack lamp—Coach Painters   \$ 30c Ordinary   6c     Vary Drop, fair   15.     Vary Drop, fair   15.     Vary Drop, fair   15.     Vary Drop, fair   15.     Vary Drop, fair   16.     Vary Drop, fair	WI
ove No. 36, special rates. in 14 inch. 70 3-16 1-10 Mandrel Draws Tubes, 5 cents advance on List rices.	Ultamarine	L
Mandrei Drawn Tubes, 5 cents advance on List rices. ney Tubing, 4 cents advance on List above Plain. glish, Scotch and Extra Patterus Fancy Tubing 5 No. 20, 5 cents above Plain.	Green, Chrome	Le
o No. 20, 9 cents above Plain. bing Sawed or Cut 2 to 4 feet long, 2 cents ad- ance on List. d to 2 cents % cent for each additional cutting	Mineral Paints	

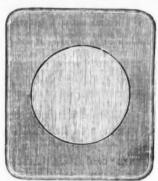
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Bleached " 148	Double Thick.
eal, Extra Retined	sizes. 1st. 2d. 8d. 4th
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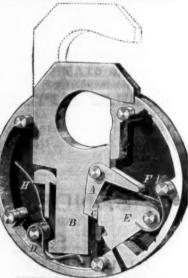
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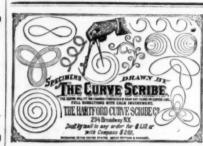
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A. C. COES' NEW PATENT

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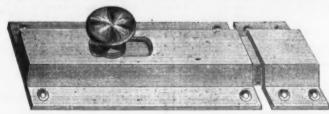


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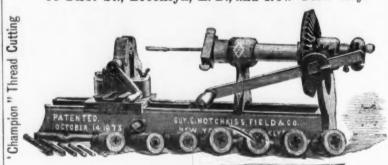
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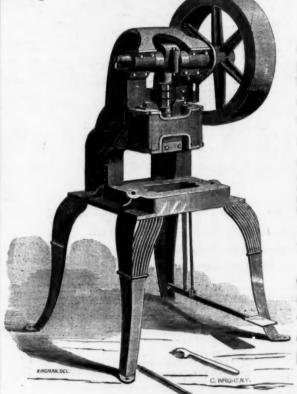
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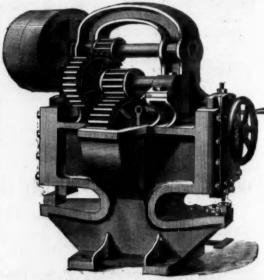


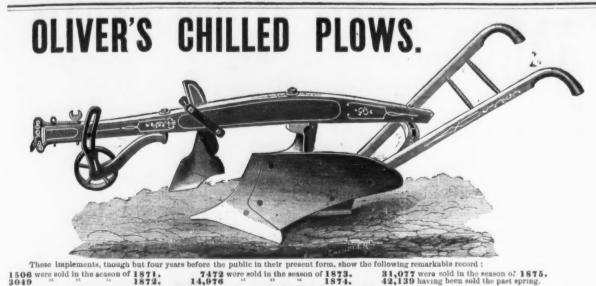
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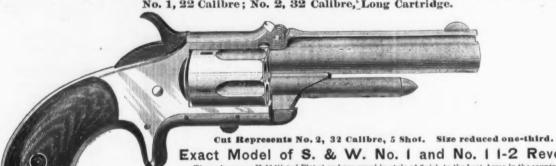
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- 1	I. A. 14kao Charcoat	-	
- 1	1. X X. 14x20 Charcoal	- 68	14:00
п	I. C. 12x12 Charcoal	-	9:50
- 1	D. C. 1254x17 Charcoal	6	9-26
П	D. C. 125 All Charcon		11-75
ч	D. X. 12 1/2 x17 Charcoal		
- 1	I. C. 14x20 Charcoal Booting		7-75
- 1	L. C. 20x28 Charcoal Roofing	-	17:50
- 1	1. C. 19x14 Coke	(4)	7-50
- 1		- 7	8150
- 1	I. C. 14x2J Coke	· w	
- 1	I. C. 10x20 Coke		1300
- 1	Sheet Zinc,-Cask	G	9% c
- 1	Sneet	4	10%c
- 1	Dacet. Danielown		52 c
п	CopperBraziers	w	ONE C
- 1	Pianished	68	40 c
- 1	Sheathing	Gill	82 c
	Bottoms	6	84 c
1		-	32 c
- 1	Block Tin.—Pig	-	ac c
- 7	Block Tin Pig	- 69	24 c
-1	Bars	<b>a</b>	26 c
п	Lend,-Pig	- 60	7%c
п	Bar.		856C
П	Dar	· ·	0790
- 1	Solder,-8. & Co	- 64	18 C
-1	A	-	15 C
- 1	Market Wire -Bundles	d1	40 €
П	Sheet Iren. "B," No. 27. Smooth D Refined, No. 27.	Ale	95 4
ч	Mileson Amon 100 11 No. 07	4854	4:800
п	Sheet Iron. D. Mo. St.		4.900
. (	Smooth, 'S L U, No. 21		2.10C
	Smooth D Refined, No. 27		6.80c
- 1	Planished "A." Planished "B"		190
-1	Dranfahad ((B))		110
- 1	fronte of the A		
-1	Imitation A		100
. 1	Imitation B		.836C
н	Galvanized	dis 2	B14 %
П	Russia		150
- 1	Brass,-Soft		900
- 1	Diam's Dore		
- 1	Hoop	****	, and
- 1	Platers'		
- 1	Tabe		.50c
-1	Antimony		10c
- 1	Babitt Metal-No. 1 3 3		e cases
-1	Bubitt Metal-20. 1		
4	Biamuth 45c 25c 20c		LUC
-1	Blamuth	1	<b>8</b> 3 50
-1	Nickel		38 543
-1	Steel Cast		140
1	Die I Care	44.	11.00
-1	Elbows	du	10 %
Ш	Enameted Warediscount from nev		.8%C
ij.	Enameted Ware discount from nev	e lint	541 K
1	Bread Pans	24	S Se
1			m 00
ı			
1			

		AGO.			
	(Revorted by Frank Sturges		df 76	Lake	Bt.
	Tin Plate	14x20, IXX.	Ch'		14 5
	10x14, 1C,Ch'l. Good.8	14x30, IXX	L. 14	44	17.0
	10x14. 1C, ' Heat, 8 50	DC, 100 Plat	e, "		8 5
		DA.	**		110
		DXX.	-	44 *	18 5
	16kbig LA			*	16 (
	14x20. IX. " . 950	IX, 14x14	**		
	19820, 176 00 1	- Com			
	14x20, IC, Charcoal Roofing	r, com	*****	*****	
	14x30, IC. "	Good			
	14x20, IX. "	Hest			8 00
	20x28. IC. 15	Co-		*****	10-56
	20x28. IC. "	Com			
	20x38. IC. "	Good			
	20x28, IX.	Best	*****	*****	14 9
	10x20, IC, Bright Coke for	Chattan	*****		22 U
	Breck Tin.	Crutters	*****	*****	13 U
	Large Pigs 34c	Dane			-
	Small	Denta			4 400
	Zinc sheet, 500 to 1000 lb.	Cautra			00.0
	Loose Sheets	C		*****	1014
3	Slab Zinc or Spelter	*********		200	1029
1	CopperBottoms				10 30
	Sheuthing	**** ********			200
- 1	Plantshed	***********	****		90.
	Planished	**********	*****		90.
	Bolt.	*********			
	Braziers' Sheets	***********		******	
	30x60, 6 to 7 lbs 1 186	1 90v60, 10 to	19 Ib		
	30x00, 8 to 9 lhs " 98	1 Mindle 18 cc	100 1		- 2

Roofing Braziers or Antimony Babbit Me	**********			220
No. 2			********	180
		Smooth.	Smooth	Smaoth
BP O.	Common.	Com.	Charcoal.	Juntata
No. 24 25 & 26 27 Gaivanized No. 16 to 30	. 8%c	5 €	63%C	8%c
25 dt 26	. 4 C	5%C	6 % C	9 C
	4.46	5%c	7 c	9% C
Galvanized	I Iron			(218 30 9
No. 16 to 20.		le   No. 27 .	********	150
21 10 26 .	Ai	1C   178 .		100
Russia Iro Perfect	n	No. 18	tained	150
Perfect		e i in Sh	eets, 1c. hl	rher.
American I A Lond.— Pig	-antesuS	1 B		
A		c In she	eis. ic high	100
Lend		I Lead P	ine, in full	colin 9 r
Pig	24	c Lead P	ine, when	out 94 c
Bar		c   Sheet	Lead	10c
Wire-Brigh	1	to I manne	ADOMES	410 M 1
Coppered		*******	********	dia 96 4
copperce				410 00 /
	2000	-		
	ROS	TON		
Reported by	Manamher	Bigaloan	A Tionne	186 (n. 16)
verbourge of		aver St.)	as Dowes,	TIME OF TO
Anvila"E	agie Americ	an "	per 1b. 10	c: dis 20 f

Coppereddis 35 7
BOSTON.
Reported by Macomber, Rigelow & Dowse, 156 to 164
Auvila,—"Eagle American"     per lb. 10c; dis 20 %       Augers,—Watrous Ship.     dis 10 %       L'Hommedien Ship.     dis 15 %       Les,—Blue Jacket     11 00       Racer     10 00       Roy's Handled Wing Lesker     10 00
A (Extra) \$2.50. B (No.1) \$2.00. C (No.2) \$1.50 \$1.00
Blind Hinges.— Orr or Washburn's
Orr or Washburn'sper hundred set \$6 (t)  Boits.—Carriage. Phils., "Girard Worksdis 60 \$
Sora K.—Best Itefined
Boring Machines.—Angleeach \$4 50 Common. Snell's qualityeach 3 50
Braces Barber's
Brackets.—Star Bronzednew list net Star Japannednew list net Store Shelfnew list net
Brushes Horse, Patent Metallic dis 25 \$ 10 \$
Butts.—Union Drilled Loose Joint
Wrought Table Butts and Back Flans
Wrought Narrow Butts, reduced, dis 30 % Unrds.—
Curry Cards, No. X, per doz., \$0°55 dis 30 % Horse "No. X, "0°80
Cotton 'No. 10, '850. dis 10 4 Cartridges. U.S. Cartridge Co. dis 60 2

	Cotton " No. 10, " 8:50dis 1
	Carteldres - 1 0 % Carteldre Co
	Chisels,-"Buck Bros." Shank Goodsadd &
	Chineses - Deck Bros. Shank Goodsadd 2
	Socketadd 2
	ChurnsLightning-
	Redheffer patent 3 4 5 6 c
	Redheffer patent
	flower and his live Donate
	Compasses and Dividers.—Bemis'dis 4
	P. S. & Wdia 3
	Cordage, -Manila (usual trade dis.)
	American Tarred Hemp Lath Yarn
	Com Manks
7	Corn Hecksper doz & Urew Bars.—iron. Steel Points
	Crew Bars.—Iron. Steel Points # 25, 5
٠.	"Sweet" Steel Bars B
	Brown's Steel Hara
	K. P. & Co. Extra Drili Steel
	Atom Wiles
	Dividers —Cook a Nicket Plated die 1

K. P. & Co. Extra Drill 8	teel		39
Cow Ties			
Dividers, -Cook a Nicke	es Pluted		di
Door Springs,-Mosele	V-		
Per doz	12:00	15:00	18 00
No 0	1	9	10 00
Torrey's		-	
Gem	\$3 50 · 9	<b>89</b> 50 -	9 49 Ou
Egg HeatersLightnin	g Redh	offer not	ninta
1 qt., \$8 90; & qta., \$12 0	mer do	nasca pos	" binen,
EmeryAlden	or per do	m.	100
Wellington Milis		*******	30
Files.			
American	851	o W ann	nonay la
Nichoteon		o & curi	ency, re.

Stubb's Tapers, genuit	se, 3 in., \$1.50; 33, \$1.62; 1, \$1
4½, \$2 18; 5, \$2 50 Funnel Irons	dia
\$2.00	2.50 2.50 3.25 per
Deep Flange\$3.50	5%, 6, 7 inch.
5.	536. 6 inch
HammersMaydole	steel, adze eye, No. 1, \$10; 134 bell face, No
M., B. & D., solid cast	steel, adze eye, No. 1, \$10; 134
\$11: 134, \$9.75.	ben race, No
Hammond	dis
Anti-Friction	-Novelty

Anti-Friction the Sink 5
Anti-Friction
C. F. Dowse, warranted Cast Steel-
Shingling
Claw
Lathing 1 45-50
Axe Pattern 1, \$7.00 :2, 7"
Axe Fattern
3' 91% to, # 914.tb
Hiuges Strap and T. Stanlev Works dis 60
Plate, Loose and Fast Joint * * *
Wrought Screw Hook # B 63
KnobsYoung's imp. Sliverd Glassdis 45
Lanterns,-1 uoular No. 0 \$ 9:
Guarded, No. 74, (with kerosene oil and candle

ш	Lend Sheet, 10c.; Pipe, 916c 1088 10%
	Locks Norwalk Lock Co requeed list, dis 35&5 \$
ш	Mattecks
	ITA BELLEVIOLE BY
	K. P. & Co., axe finish, long cutter \$13 00-net
ш	Snort cutter 12 75—net Meat 4 utters.—" Miles's" Challenge,
ш	Di anna di manana di Milandali Challanan
ш	ment tutters. Muess Chanenge
П	No. 1, \$22.00; 2, \$30.00; 3, \$40.00.
ч	MetalHabbitt No. 1, 35c; 8, 25c; 5, 15c W b
٠.	THE CLASS - CHARDITE
	Nails.—10d and larger
	Nati Pullars - Little Glant-Small perder wood
- 1	Marie I distorm - Antere Crimite Strand Der doz., ess do
- 1	Little Giant-Large " 80'00
- 1	Padiocks Wucox. reduced list, dis 35d 5 s Picks h. P. & Co., Solid Eyes. 5 to 6 6 to 7
ъI	A Maria Control of the Control of th
٠,	Picksh. P. & Co., Solid Lyes to 6 6 to 7
- 1	99 00 99 50

	Potato Diggers,
	rotato Diggers,
	Winington, Cooley & Crdis 3
	Pulleys,-Axie.
П	Frame Pol. Wheel No. 150, 50c., 1 % in.; 16, 38c., 2
ı	Common Axle No. 18, 84c., 1 \( \text{ln.}; 26, 40c., 2
1	Common Axie No. 18, 84c., 1% In.; 26, 40c., 2
1	Milled Axle
1	Milled Axle
١	Cust steel Ayle
1	Chat Diver Assessment and the plant of the p
ı	Pulley Blocks, Best Boston Make"
1	Pintes Ware Rogers bros dis 4
1	Pocket it nives Conn. Cullery Co new net i
١	Pocket Knives. Count. Cutiery Co new net i
١	American Shear Conew net l
ı	Rail Harn Door For Noveity and Anti-Frie-
1	tion Hangers per foot 7c., dis 3.

	BAR IFBES. Deces & Disar D
6	M. B. & D
С	M B & D A 10 9 84-95 : 9 to 9
e I	Baws Hand and Panel-
0	Baws Hana and Panet-
9	Wheeler, Madden & Clemson's, some list as " Dis-
C	ton's'dis. 15
6	
	Dission s
- 1	Wheeler, Madden & Clemson X Cutsper ft
00	" Champion X Cut. "
0	Boynton's genuine Lightning X Cut per ft.
0	boyatou s gendine Lightning & Cut per 1t.
. 1	SerewsAm. Screw Co., new list Sept. 1st dis
G.	Alken's
0	Moveho Micanes
*	"Willoughby Lake," first quality F gross
- 1	willoughby Lake, aret quanty w gross
9 1	second qualty

2	" second qualty
	Shoveis, (). Ames (1)8:
9	М. в. & D
2	Sifter Coai, Rice, &c
-	Spading ForksW. C. & Codis
2	Stone Pickers "Partridge," original # doz \$1
: 1	Toois Aiken a Pattern, 40 in set ; Parr's, . 16 50 per
	Traps,-Onesda
. 1	Blake's
٠l	VinesK. P. & Co.'s Solid Box. Blacksmith & D
٤I	Parker's Parallel qis
: 1	Backusdis
2	" Howards." Parallel

Backusdis 2
Backus
Wardrobe Hooks Wire to drive w gross \$1
Weather Strips, -" Harmon's" per dox 35. dia 10
Weights Window Weights # D 1
Wedges-Axe 4 doz 5
Wire
Eureka, in spools, No. 28 to 40 assorted W gross \$3
Wire NettingClinton Wire Cloth Co., Green,
Drab or Black # ft
WrenchesGenuine Wrenches, G. A. Coesdis 404:
Waltondis 50
Wwinger

50 J	Wringers.		-
00	Novelty (Tub No 9 (Less than dog,	970	na.
50		20	00
100			
00 50 0	Bench A less than 2 doz \$90 00; 2 doz or more	\$88	90
LO	В " 98 00 "	96	UU
	" C " " 114 00 "	111	00
	Eureka " " 60 00 " "	58	UO
	Withington, Cooley & Co		
	Hoes, Rakes, Forks, &cd	is 8	26
90	-		-
50	Boston Metal Market.		
	(Corrected by Fuller, Dana & Fits, 110 North St.		
an l	Boston, Importers and Commission Merchants	ecs,	,
00 00 00 00 00	April 15, 1876	0.3	
W)	Fron Best Refined Bar Iron w ton		
~	"Burden Best" "	4.44	00
to 1	Swedish Bar Irongold "	09	CO
~	Norway Shapesgold	100	UU
se l	Norway Nail tods	88.8	50

1	Wannahit Casan Isan	" # toi, \$30.00
	Wrought Scrap Iron	9 201, 400 00
	teet	1 39 %
10	Eng Tool world 481	Contract Con
	Eng. Tool, gold 15%c	Spring 7 c
	American Tool 14 c	Tire 5%c
1	" Mach 8%c	Sleigh Shoe 4%c
1	Bessemer 616c	
17	In Plates F pox gold	Copper PB
1 -	1. W. Char. 10x14 \$7.50	Ingot 21×C
1	I. C Coze 10x146 50	Bolt 80c
1	Char. Roof. IC, 14x20, 7 00	Sheathing Sic
1	Coke " IC, 14x20, 6 00	
	METALS.	Pig 750
IP	Ig Tin. + B., gold	Bneet 9c
1 -	Banca 23c	_Pipe 8.5c
	Straits 17 c	
	English 17 c	
	German 9 c	Antimony, gold # 16 0

### ST. LOUIS.

1	Corrected weekly by Semple, Birge & Co.
1	Apple Parers.—Conqueror = mrs 97 75
١	Hudson's Rotary 775 A xesWm. Mann's, Red Warrior 9 dos \$10 55
1	Win. Mann's, W. Stewart's
ı	"C. Marahall". " 9 75
ı	Handled '\$5 ektra
ı	" Double Bitted " 19 30 H. L. B. & Co., ", L. & Co. " 10 75 " Ploneer " 11 25 " James & Co. " 10 22
ì	H. L. B. & Co. 's, L. & Co " 10 75
ı	Ploneer " 11 25
ı	Hunt's James & Co. 11 25
	Axies. "Jones, Henry & Co.'s" Patent Lubricating, Half Patent, Swelled Taper, Plain Ta-
	cating, Half Patent, Swelled Taper, Plain Ta-
	per and Concord Axies dia is & 5 %
ı	Common Axies (Pat. Lubricating), 1% inch and
Ì	upward 9 b. 6 c.
ı	do, less than the inch 6%c.
1	Bellows Best St. Louis make
١	"Improved Amalgam Bronzed." 15 in., \$2:00;
1	17 in., \$2.50; 19 in., \$4; 21 in., \$5; 24 in., \$14; 27 in. \$19.50
1	Beiting, - "Boston Beiting Co.'s Rupper dis 4185 \$
ı	Bradford & Sharp's" Oak-Tanned Leather dis 30 %
1	Hoats-Metallic, Sectional, Bond's Patnew list net
	Bolts Arms, Bell & Co.'s Carriage & Tire . dtm 70&10 g
	Arms, Bell & Co.'s Machine
	Narrow Fast Joint
	Broad Fast Jointdia 3 & 10 s
1	61 LOOMS 60
ĺ	Reversible
١	Loose Joint Acces 12 11
١	Churns, Julian, No. 2, \$7:00 : No. 8, \$7:50 : No. 4
١	\$6 50
١	Cider Mills.
ı	American Senior, \$30.00 : Am Junior, \$19.50 net
ı	Corn Brill.—Campbell's Patenteach \$ Corn K nives.—Dunn E'ge T'or Co.'s Clip\$ qoz 5 00 Seymour Mfg. Co.'s Solid Steer Back
١	Seymony Mfg. Co 's Solid Stool Book 11 4 00
ı	Corn Shellers, -Sandwich Mfg. Co.'s-
ı	Power Shellers dis 10 c
ı	Hand Shellers Special rates
	Cotton Gins.
	Carver, with 10 in. Saws, \$450 a Saw dis 2216
	ls in Saws, \$5 W a Saw. dis 17/2 % Crow Hars,—Steel Pointed. > 5 6/40 Drag Saw Machines.—
	Drag Saw Machines.
	Culver's Ivon Drag Sawdis 10 %
١	Founting Mills.—Nash & Cutt's
	Feed Uniters Improved Burdick National dis 20 %
	Sanford No. 1, \$10 00; No. 2, \$8 10 net Files.—Black Diamond, Mill
	Bastard 5 to & curren y
١	Taper Sill Corror w
١	Forges Reystone Portable Forge Co.'sdis 121 &
1	Forks and Hoes.
1	Auturn Mfg. Co.'s Hav and Manure Forks dis 20 %

Auburn Mrg. Co. s Hav and Manure Forksdis 809
Handle sHoes dis 30 9
Garden Seed Drills and Wheel Hoes.
Allen's Double Wheel Hoe
" Planet Drill, Nos. 2 and 3 ofa 15;
Combined Drill and Wheel Hoe dis 15
Grinding Mills,-Challenge Feed Mills dis 15
Sedgebeer's Nonpareil Milis
Drad. ord a Frem ii Burr Mills het lis
Hammers Masous' Hammers 100
Smiths' Hand. 20 Handles. No. 1 Fork, Hoe and Make
No. 2 Fork, Hoe and Rakedis 80
Harrow Treth1 inch iron & & 4%
Wand Winchiron
K and K inchiron
Dederick's Ratiroadnet list
" Perpetuai net lis
Dunn Edge Tool Co. s
Lightning (Weymouth's Patent) Wdog san S
HOPE TIRY KOPK Nellis' Harmon Produced no
Horse Na. 18 National Patent Pointed Juc rate
National Patent Pointed, extra finished 22c **
Horse Powers, - Pitts or Carev's Patent dia 10 s
wheeler's Hallway dis 10 s
Sandwice Lever dis 10 s
Horse shoes.
Rhode Island (Perkin's Pattern) # keg, \$5 5
Mule " 65
Mule 5 5 Trodepar Horses 8 0

Tredegar Horse per keg \$4.75
Mule per keg 5.7
II DNP.
Boston Belting Co.'s Rubber Medium Sizes.dis30&10 \$
drar tdis 40 %
Mattocks and tirub Hoes.
Klein Logan & Co 's Mattocks D des ett es e to se
Klein. Logan & Co.'s Mattocks P doz \$11 75 @ 13 50
oval eve Grub Hoes,
Money Drawers.
Pierpont & Co.'s Excelsiorper doz \$38.00 net
NAME Wheeling Riverside Brand 9312 mater
Packing, -Boston Belting Co.'s Rubber Piain at a So &
Boston Belting Co.'s Rubber, Pure dia 2545 <
" Round and Square dis 10&10 %
Picks,-
Railroad andt lay
Coal 7 45 66 8 4
Tamping 14 75 (# 15 85
Miners Drifting 9 75 66 11 7
Plows.—Avery's Cast and Street
Collins Cast Cast Steel new dat ne
Pekin Steeldis z5 %
Plow SulkyBuckeye
Post Hole Augers, - Ciark & Patent-

Post Hole Augers, Ctark s l'atent-	
No. 1, W doz. \$27; No. 2, \$30; No. 3, \$32	20
Pulleys, -5 inchper doz 48'70	11674
4 inchper doz 2-50	nee
Nellis' Patent	John C.
Pumps.	20 %
St. Louis, Farm, Patent Metal Lined new list dis	
Patron Paddont's Heat Metal Linea new list dis a	D 26
Rakes Paddock's Premium Sulky each #27	50
St. Louis Revolving 14 tooth 4 8	390
16 " 5 00	net
Mand Hay Kake per doz #	2.50
Kenper Panives and rections	
Geo. Barnes & Co.'s Knivesdis 4	0.46
Sections.	30 64
Road Scrapers, -Steeteach \$8.50	10.78
Cast Iron	10
Cast 1 ron	9 %
Manual Tons, Mounto, Diana, Suver Louisned & B	
SawsCurtis & Co dis 129	6 %
Scythes Dunn Edge Tool Co. s dis	N %
Scythe Stones.—No.1 Ind'n Pond F gr's, \$7.00   Extra Indian Pond	
Extra Indian Pond	
Extra Indian Pond. 150 Premium 1050 dus 3	D 76
Diamond Grit ** 18.01	
Shovels and Spades, - H. M. Myers & Co dis S	173
Grain Scoops- Patent Cor'd Straps H. M. M. &	Con
die 30 , and 75c per doz. ext	-
	14
do. O. Ames & Son, dis 11% & and .5c	

Sledges, Smith's "one or Coal Sledges-
Steel Face Polishol
Bolld Cast Steel
Spaths and Cradies. Seymour Mir. co.'s dis 20 c
Morginum Machinery Bell Cane Mills dia 90 st
Scanting's Scanniess Evaporators. dis 1942 4
Springs, -Cleveland Spring Co.'s-
Carriage and Express
Vines. Out DOX
Wheelbarrows. — Champion Iron a heal & des 495-m
Chambion wood wheel
trarden at doz \$40 not
W renches, Coes Genuine dis sa d
Coes Pattern
Wagons Whitewater Farm Wagons
Thimbie Skein 3 in. \$74; 3% in. \$78; 3% in. \$79
Iron Axie

		_		/-			/8
St.	Louis	M	etal	Ma	rket.		
Oprrested	Weekly	by	Mesas	8. K.	Selieno	d	(O).)
1x14, Best (	Char	9:00	11X,	14x2	. Roof	DE	

1	Tin Finte.
1	IC, 10x14, Best Char. \$ 9:00   1X, 14x30. Roofing \$11:6
ı	1X, 10x14, " 11'50   IC, 20x28, " 18:0
١	IC, 12x 12, " 9'50   1X, 20x26 44 29-5
١	IX, 12x12, " 1200 IC, 10x14, Coke 80
ĺ	
ı	IC, 14x20,
Į	IC, 14x20, Rooting 5'50
J	Usual difference for odd sizes.
ı	Block Tin.
١	Strait's, Large Pigs24c   do, Smail
1	Eng. Ref'd, Large Pig2ic   Bar
1	Sheet Zinc.
١	Casks 9 to 10c   Sheet 1014
ı	Nolder.
١	Extra in Bars. 17
ı	NO. 1. 10 Dark
1	No. 2, "
ı	Roonng
Ì	Sheet Copper-
ı	Brazier's, Streit, 14 to 100 the Specie
Į	" 10 and 12 lbs., " 94 6, 7. 8 and 9 lb. Sheets. 56
I	" 6. 7. 8 and 9 th. Sheets
ı	Tinned, 14x48, 14 and 16 oz
1	Pianished, 14x48, 14 and 16 oz
١	** Bolier Sizes, 14 and 16 oz
١	Copper Bottome
ĺ	Sheet Iron - Com'n, Sm'to, Char'l, an'is



### TO ALL WHO USE STEAM-POWER!

We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

BETHLEHEM, PA.

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR,

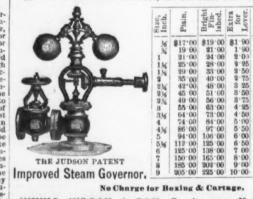
Buoy's Patent Counter Scale, No Nest of Weights.

### THE JUDSON GOVERNOR.

It is a common methou to advertise Governors without cost, unless satisfactory to the cu-tomer,
and then charge High Prices for
doing what any zood Governor
will do. Various Governors unferior to the "Judson" are sold
in this way, operating well enough
for three months, to insure collection of the pay, but becoming useless after a year's wear—their construction lacking durability. The
Judson Governor is guaranteed to
be not only the best Regulator of
betam Engines, but also the most
ourable Governor ande. Parties in
buying other Governors should
stipulate that their durability be
guaranteed, and should also take
care that they do not, for much inferior Governors, pay higher prices
than those shown in the accompanying list. We guarantee the

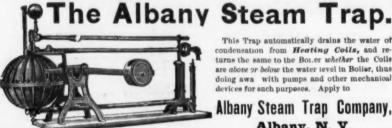
Reduced Price List,

JANUARY 25th, 1876. dors of Governor, see Illustrated Price List.



No Charge for Boxing & Cartage.

JUNIUS JUDSON & SON, Rochester, N. Y.



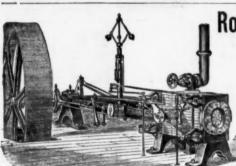
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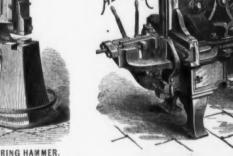
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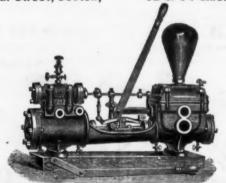
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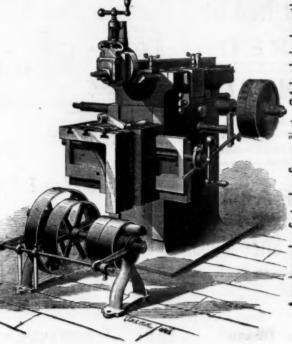
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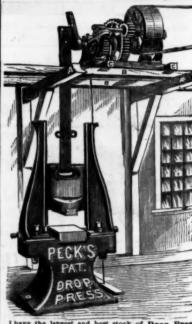
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above the die, there are exhibited by them a combined punch and shears, a drawing or blanking press, and a drop.

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Your committee would unhesitatingly recommend for this exhibition the "Medal of Progress," but find such award debarred by the rule of the Institute, forbidding such award unless a Silver Medal has been previously awarded. We, therefore, respectfully recommend the award of a Silver Medal.

Silver Medal Awarded.

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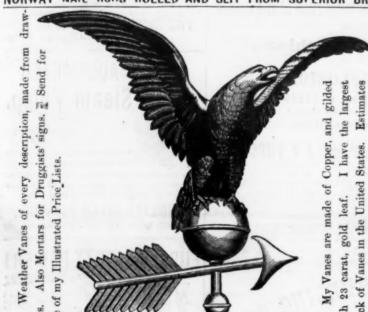
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